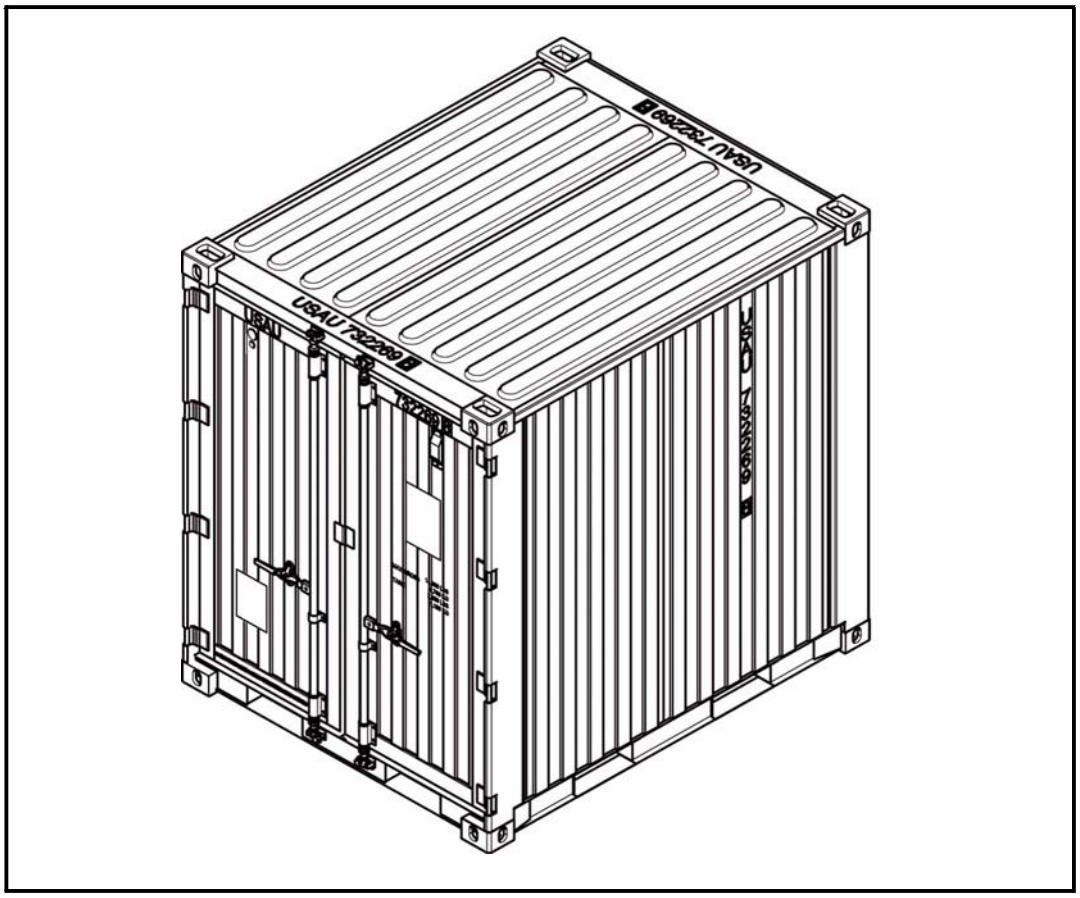
TM 55-8145-236-13&P

OPERATOR, UNIT, AND DIRECT SUPPORT MAINTENANCE (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)



TRIPLE (TRICON)
CONTAINER
TYPES 1 and 2
NSN: 8145-01-527-2878 (Type 1)
8145-01-527-2875 (Type 2)

This technical manual is an authentication of the manufacturer's commercial literature for use of the personnel to whom this equipment is issued and does not conform with the format and content specifications of AR 25-30, The Army Publishing Program. This technical manual contains information that is essential to the operation and maintenance of the equipment.

Manufactured by: Sea Box, Inc.
Procured under contract no: W56HZV-05-D-0024

DISTRIBUTION STATEMENT B - Distribution authorized to U.S. Government agencies only, to protect information not owned by the U.S. Government and protected by a contractor's "limited rights" statement, or received with the understanding that it not be routinely transmitted outside the U.S. Government. This determination was made on 3 May 2006. Other requests for this document must be referred to AMSTA-LC-LPIT/TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630.

DESTRUCTION NOTICE - Destroy by any method that must prevent disclosure of contents or reconstruction of the document.

HEADQUARTERS, DEPARTMENT OF THE ARMY - JUNE 2006

INSERT LATEST CHANGED PAGES. DESTROY SUPERSEDED DATA.

LIST OF EFFECTIVE PAGES

NOTE: The portion of text affected by the changes is indicated by a vertical line in the outer margins of the page. Changes to illustrations are indicated by miniature pointing hands. Changes to wiring diagrams are indicated by shaded areas.

Dates of issue for original and changed pages are:

Original 15 JUNE 2006

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 16 AND TOTAL NUMBER OF PAGES IS 104 CONSISTING OF THE FOLLOWING:

Page No.	*Change No.	Page No.	*Change No.	Page No.	*Change No.
Title	0				
i – ii	0				
1-1 through 1-7/(1-8 blank)	0				
2-1 through 2-12	0				
3-1 through 3-2	0				
4-1 through 4-21/(4-22 blank)	0				
5-1 through 5-18	0				
6-1 through 6-12	0				
A-1 through A-2	0				
B-1 through B-3	0				
Alphabetical Index	0				
Back Cover/PIN Number	0				

*Zero in this column indicates an original page or work package.

TM 55-8145-236-13&P
HEADQUARTERS, DEPARTMENT OF THE ARMY
WASHINGTON D.C., 15 JUNE 2006

OPERATOR, UNIT, AND DIRECT SUPPORT

MAINTENANCE (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)

FOR

TRIPLE (TRICON)

CONTAINER

TYPES I AND 2

NSN 8145-01-527-2878
(TYPE 1)
NSN 8145-01-527-2875
(TYPE 2)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028 (Recommended Changes to Equipment Technical Publications), through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is http://aeps.ria.army.mil. If you need a password, scroll down and click on "ACCESS REQUEST FORM". The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax or E-mail your letter or DA Form 2028 direct to: AMSTA-LC-CI/TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The email address is: TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

This technical manual is an authentication of the manufacturer's commercial literature for use of the personnel to whom this equipment is issued and does not conform with the format and content specifications of AR 25-30, The Army Publishing Program. This technical manual contains information that is essential to the operation and maintenance of the equipment.

Manufactured by: Sea Box, Inc.
Procured under contract no: W56HZV-05-D-0024

DISTRIBUTION STATEMENT B - Distribution authorized to U.S. Government agencies only, to protect information not owned by the U.S. Government and protected by a contractor's "limited rights" statement, or received with the understanding that it not be routinely transmitted outside the U.S. Government. This determination was made on 3 May 2006. Other requests for this document must be referred to AMSTA-LC-LMIT/TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630.

DESTRUCTION NOTICE - Destroy by any method that must prevent disclosure of contents or reconstruction of the document.hHE

TABLE OF CONTENTS

Chapter 1: Introduction 1-1

Safety Precautions 1-1
General 1-1
Warning Summary 1-1
General Information 1-3
Scope 1-3
Equipment Description 1-4
Capabilities and Features 1-4
Marking 1-5
Warranty Information 1-5
Difference Between Models 1-5
Performance Data 1-6
List of Furnished Items 1-7
List of Items Required 1-7

Chapter 2: Operating Procedures 2-1

Handling of Coupled and Uncoupled Containers 2-1
General 2-2
Door Operation 2-3
General 2-3
Opening Procedure 2-3
Closing Procedure 2-4
Tie-down Operation 2-5
General 2-5
Tie-down Procedure 2-5
Decking / Shoring Beam Operation 2-6
GENERAL 2-6
inserting 2-6
Container Coupling Operation 2-7
General 2-7
Connecting Containers Using Horizontal Twist-lock Couplings 2-8
Preparation for Shipping 2-12
Container Inspection and reinspection 2-12

Chapter 3: Tools and Test Equipment 3-1

Necessary tools for inspection and repair procedures 3-1
General 3-1
Tools and Test Equipment 3-1

Chapter 4: Unit Tasks 4-1

Unit Preventive Maintenance, Checks and Service (PMCS) 4-1
General Preventive Maintenance, Checks and Service (PMCS) 4-1
Lubrication Instructions 4-3
Lubrication 4-3
Door Gasket Removal and Replacement 4-4
Initial Setup 4-4
Door Gasket Removal 4-4
Door Gasket Installation 4-6
Vent Removal and Replacement 4-11
Initial Setup 4-11
Vent Removal 4-11
Vent Installation 4-12

Locking Bar Assembly Removal and Replacement 4-13
Initial Setup 4-13
Locking Bar Assembly Removal 4-13
Locking Bar Assembly Installation 4-14
Door Hasp Assembly Removal and Replacement 4-15
Initial Setup 4-15
Door Hasp Assembly Removal 4-15
Door Hasp Assembly Installation 4-16
Manifest Box Removal and Replacement 4-17
Initial Setup 4-17
Manifest Box Removal 4-17
Manifest Box Installation 4-18
Data Plate Removal and Replacement 4-19
Initial Setup 4-19
Data Plate Removal 4-19
Data Plate Installation 4-20
Spot Painting 4-21
Spot Painting Procedures 4-21

Chapter 5: Direct Support Tasks 5-1

Direct Support Inspection and Troubleshooting 5-1
Door Sides / Ends Inspection and Troubleshooting 5-1
Corner Post Inspection and Troubleshooting 5-2
End Rail Inspection and Troubleshooting 5-3
Panel Inspection and Troubleshooting 5-4
Roof Assembly Inspection and Troubleshooting 5-6
Door Removal and Replacement 5-7
Initial Setup 5-7
Door Removal 5-7
Door Installation 5-10
Welding and Repair Procedures 5-12
General 5-12
Acceptable Patching 5-13
Rail and Post Splicing 5-13
Side and End Panel Repair 5-16

Chapter 6: Illustrated Repair Parts List 6-1

Introduction 6-1
General 6-1
Explanation and Use OF Columns 6-1
Repair Parts List with Illustrated parts Breakdown 6-2
Expendable / Durable Supplies and Requirements 6-12

Appendix A: Inspection Checklist A-1

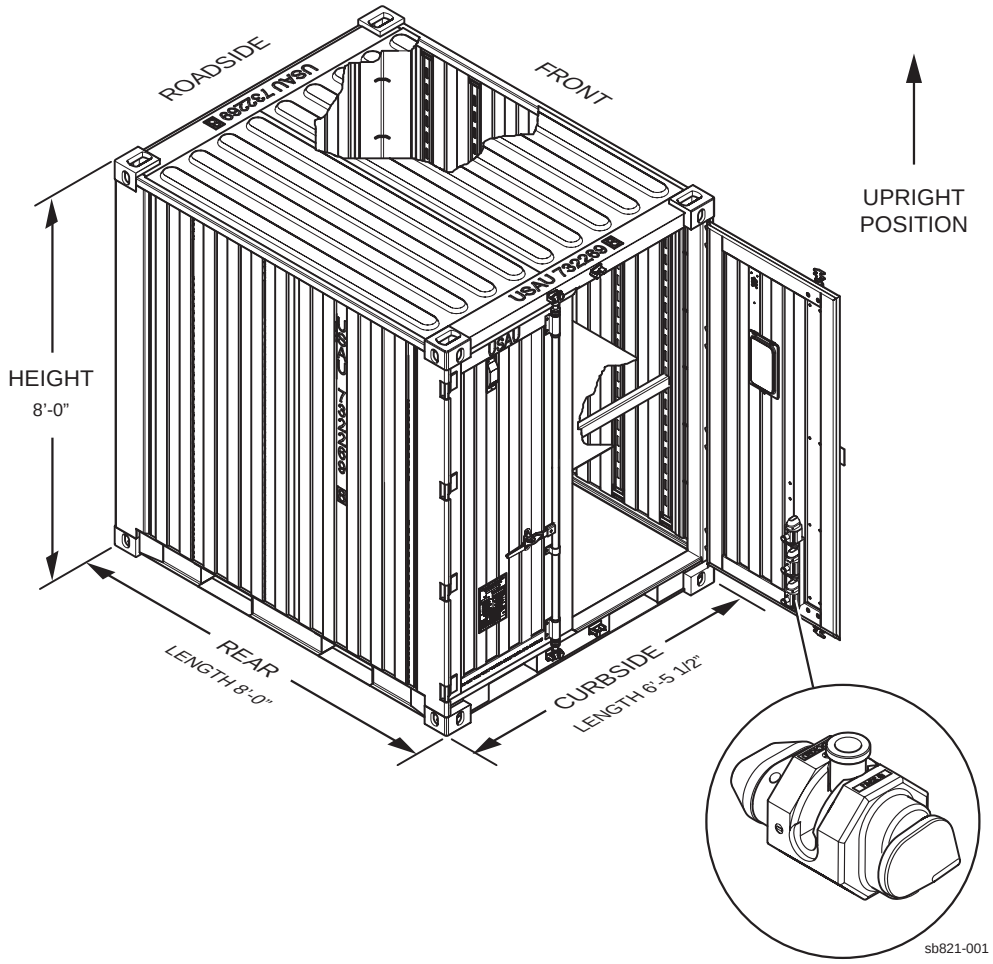
ISO Container Inspection Checklist A-1

Appendix B: Maintenance Allocation Chart B-1

Explanation of Columns B-2

MAC for TRICON Assembly B-3

TRIPLE (TRICON) CONTAINER
Types 1 and 2



PART	PART NUMBER	NSN
CONTAINER (Type 1)	SB-821	8145-01-527-2878
CONTAINER (Type 2)	SB-822	8145-01-527-2875
HORIZONTAL TWIST-LOCK COUPLING	SB-2341	TBA
DECKING/SHORING BEAM	SB-2150	TBA

THIS MANUAL IS TO BE EMPLOYED FOR THE USE, MAINTENANCE AND REPAIR OF THE SUBJECT CONTAINER

TO REPORT ERRORS, OMISSIONS, OR FOR ANY FURTHER TECHNICAL ASSISTANCE, PLEASE CONTACT:

ENGINEERING DEPARTMENT, SEA BOX, INC.
802 INDUSTRIAL HIGHWAY
EAST RIVERTON, NJ 08077
TEL: 856-303-1101 FAX: 856-303-1501
E-MAIL: SALES@SEABOX.COM

CHAPTER 1: INTRODUCTION

SECTION I : SAFETY PRECAUTIONS

1.1 GENERAL

1.1.1. Read and understand all instructions in this manual relating to any specific task before beginning that task.

1.1.2. Carefully read and understand all notes, cautions and warnings contained in this manual that pertain to the task you are to perform.

1.1.3. Never move the container with any door removed or open.

1.2 WARNING SUMMARY

This manual contains DANGER, WARNING and CAUTION statements throughout the text. These statements directly relate to safety in performing specific tasks. Observe these DANGER, WARNING and CAUTION statements closely. These terms are defined as follows:

This safety alert symbol appears with most safety statements. It means attention, become alert, your safety is involved! Please read and abide by the message that follows the safety alert symbol.

DANGER

"DANGER" indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. Danger is limited to the most extreme situations.

WARNING

"WARNING" indicates a potentially hazardous condition which, if not avoided, could result in death or serious injury.

CAUTION

"CAUTION" indicates a potentially hazardous condition which, if not avoided, could result in minor or moderate injury.

CAUTION

"CAUTION" *without the safety alert symbol* indicates a potentially hazardous situation that can cause damage to the container, equipment and/or the environment or result in a loss of mission effectiveness.

This summary contains general safety warnings and hazardous material warnings that must be understood and applied during operation and maintenance of this equipment. Similar cautionary statements are located throughout the manual.

⚠ WARNING

AVOID DEATH OR INJURY!

Perform all inspections as specified. DEATH or serious injury could result if inspection is not performed as specified in this manual.

⚠ WARNING

AVOID INJURY OR DEATH!

Container doors are heavy. Uncontrolled door swinging could cause serious injury, death or damage to other equipment. Always secure doors with locking bars or door tie-back ropes.

⚠ WARNING

AVOID INJURY OR DEATH!

Containers are heavy. Uncontrolled containers swinging or falling could cause serious injury or crush personnel to death. Always positively control containers and never enter underneath containers during lifting or moving.

⚠ WARNING

AVOID BLINDNESS!

Use eye protection when removing Huck bolts. Flying debris can cause eye injury resulting in permanent blindness.

⚠ WARNING

AVOID INJURY OR DEATH!

Do not allow the unit to swing while suspended from a lifting device. Failure to observe this warning may result in injury to personnel and damage to the equipment.

Use care in handling to avoid damage to the container. If an overhead lifting device must be used, make sure to use an appropriate sling.

⚠ WARNING

AVOID BLINDNESS OR BURNS!

Use eye protection when grinding. Use welding goggles and gloves when welding. Sparks, flashes and flying debris during welding or grinding can cause eye injury resulting in permanent blindness.

⚠ WARNING

AVOID BLINDNESS!

Use eye protection when drilling or cutting. Flying debris during drilling can cause eye injury resulting in permanent blindness.

⚠ WARNING

AVOID LONG-TERM HEALTH PROBLEMS!

Coating materials may contain dangerous chemical compounds with harmful vapors. Always use a respirator when painting. Always use eye protection and avoid contact with skin when painting. Consult the MSDS data before painting.

⚠ CAUTION

Do not lift container sets that are not properly connected with twist-locks. Failure to observe this warning may result in injury to personnel and damage to the equipment.

CAUTION

Secure all cargo to the container using appropriate cargo management devices and tie-downs. Uncontrolled containers swinging or falling could cause equipment damage.

Always positively control containers during lifting or moving. Property damage or loss of mission effectiveness could result from failing to control the load during transit.

SECTION II: GENERAL INFORMATION

1.3 SCOPE

1.3.1. Type of Manual – This manual addresses necessary container operating and maintenance information. A repair parts list is included in Chapter 6: "Illustrated Repair Parts List" on page 6-1. Use this documentation for safe and effective container operation, maintenance and repair.

1.3.2. Model Name – This manual is for Triple containers (TRICON Type 1 and TRICON Type 2).

1.3.3. Equipment Description – The TRICON is intended for use by the US Army to house and support the storage and movement of organizational property and dry cargo supplies in the field and in the garrison.

1.3.4. Purpose and Function of Equipment – The TRICON is designed to be shipped in sets of three in the configuration of an International Organization for Standardization (ISO) 20' containers. The TRICON can be shipped in quantities of one, two or three.

NOTE

When shipped Individually, the container is not considered an ISO unit.

COPYRIGHT CREDIT LINE

Operating and Maintenance instructions including Repair Parts and Special Tools List (RPSTL) for the TRICON I and II was produced from copyrighted material. Sea Box, Inc. grants the U.S. Government unrestricted copyright release for this manual.

SECTION III: EQUIPMENT DESCRIPTION

1.4 CAPABILITIES AND FEATURES

1.4.1. The TRICON is a weatherproof, flame-retardant, dimensionally standard and reusable cargo container for the transport and storage of organizational property and dry cargo supplies.

1.4.2. The TRICON Type I has doors on one side and the TRICON Type II has doors on both sides.

1.4.3. The TRICON has a four-way fork lift entry.

1.4.4. The TRICON is equipped with three horizontal twist-lock corner couplings. These twist-lock corner couplings are provided to form arrays of two or three containers for efficient transport.

1.4.5. The TRICON may be equipped with fifteen decking/shoring beams to manage cargo and prevent shifting while the container is in transit.

1.4.6. The TRICON is equipped with a steel floor.

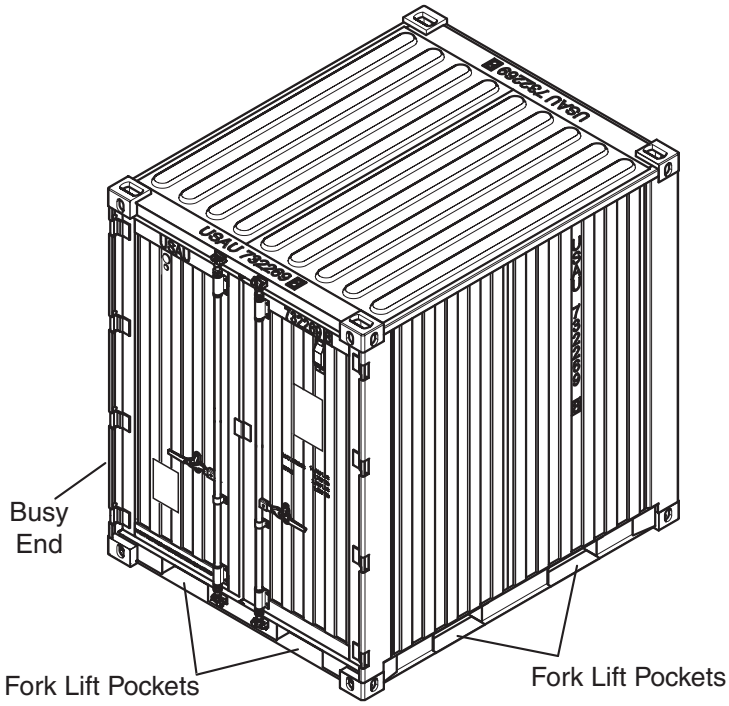


Figure 1.1 Busy End Type 1 and Type 2

1.5 MARKING

1.5.1. Each TRICON container is equipped with a data plate located on the front left container door. The data plate contains the CSC safety approval seal, the customs approval seal, the manufacturer's serial number, and Sea Box contact information. Refer to **Figure 1.2**.

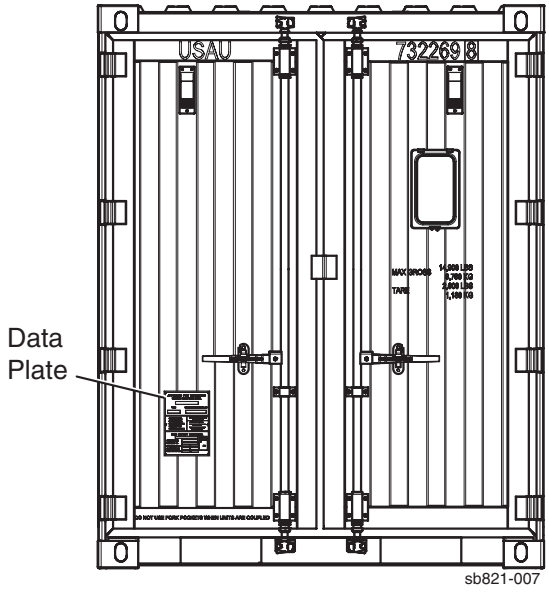


Figure 1.2 Marking

1.6 WARRANTY INFORMATION

1.6.1. Sea Box Inc. products are guaranteed against defective workmanship for a period of one year from date of shipment when properly handled and operated. Paint is similarly warranted for a period of five years. Defective material returned to our factory, transportation charges prepaid, will be replaced or repaired without charge if found defective within the warranty period.

1.6.2. For warranty claims assistance, contact Sea Box, Inc. by telephone.

(800)732-2698, in the U.S.

(856) 303-1101, outside the U.S.

1.7 DIFFERENCE BETWEEN MODELS

1.7.1. Other than door configurations, there are no model differences in effect on the Sea Box triple container TRICON Type 1 and TRICON Type 2.

1.8 PERFORMANCE DATA

Table 1.1 Performance Data (Type 1)

Overall Dimensions	
Exterior Height	8'
Exterior Width	8'
Exterior Length	6' 5-1/2"
Interior Height	7' 4-15/16"
Interior Width	7' 7-15/16"
Interior Length	6' 4"
Gross Weight	14,900 lbs
Payload	12,300 lbs
Tare Weight	2,600 lbs
Interior Volume	359.7 cu. ft.
One Door Opening	
Height	**7' 1-1/2"**
Width	**6' 1-5/8"**

Table 1.2 Performance Data (Type 2)

Overall Dimensions	
Exterior Height	8'
Exterior Width	8'
Exterior Length	6' 5-1/2"
Interior Height	7' 4-15/16"
Interior Width	7' 6-9/16"
Interior Length	6' 4"
Gross Weight	14,900 lbs
Payload	12,100 lbs
Tare Weight	2,800 lbs
Interior Volume	354.2 cu. ft.
Two Door Openings	
Height	7' 1-1/2"
Width	6' 1-5/8'

1.9 LIST OF FURNISHED ITEMS

Table 1.3 Furnished Items

Item	Part No.
Triple Container (TRICON Type 1) or	SB-821C
Triple Container (TRICON Type 2)	SB-822C
Horizontal Twist-lock Coupling (x3)	SB-2341
Optional Decking / Shoring Beam (x15)	SB-2150
TRICON Technical Manual	SB-821TM

1.10 LIST OF ITEMS REQUIRED

Two or three containers to be connected using the supplied horizontal twist-lock couplings.

CHAPTER 2: OPERATING PROCEDURES

SECTION I : HANDLING OF COUPLED AND UNCOUPLED CONTAINERS

⚠ WARNING

AVOID INJURY OR DEATH!

Containers are heavy. Uncontrolled containers swinging or falling could cause serious injury or crush personnel to death. Always positively control containers and never enter underneath containers during lifting or moving.

⚠ WARNING

AVOID INJURY OR DEATH!

Do not allow the unit to swing while suspended from a lifting device. Failure to observe this warning may result in injury to personnel and damage to the equipment.

Use care in handling to avoid damage to the container. If an overhead lifting device must be used, make sure to use an appropriate sling.

⚠ CAUTION

Do not lift container sets that are not properly connected with horizontal twist-lock couplings. Failure to observe this warning may result in injury to personnel and damage to the equipment.

CAUTION

Secure all cargo to the container using appropriate cargo management devices and tie-downs. Uncontrolled containers swinging or falling could cause equipment damage.

Always positively control containers during lifting or moving. Property damage or loss of mission effectiveness could result from failing to control the load during transit.

2.1 GENERAL

The TRICON design allows coupling in single container, double container and triple container configurations. They can be moved using properly equipped, regular container spreaders, top lift or side lift fork lifts. Wire rope or chain slings can be used to move TRICONS if regular container spreaders, top lift or side lift fork lifts are not available. If slings are used, they must be attached to the coupled TRICONS through the bottom side apertures of the corner fittings on the outermost TRICONS.

2.1.1. Maneuvering Two or Three TRICON Coupling Configuration. There is no approved method of handling two or three TRICONS coupled together with a fork lift. A wire rope or chain slings can be used if they attach to the coupled containers through the outer bottom side apertures of the corner fittings of the two TRICONS.

2.1.2. Maneuvering One TRICON. A single TRICON can be moved using properly equipped, regular container spreaders, top lift and side lift fork lifts. A fork lift can be used by the fork lift pockets on the center TRICON. Fork lift maneuvering can be used for a single TRICON, laden or unladen.

In the case of single TRICON, sling lifting can be undertaken with the slings attached to either the top or bottom side apertures of the corner fittings. When using the top corner castings as the slinging points, the angle of the sling must be at least 60 degrees from the horizontal. ISO Standard ***ISO 3874*** refers to approved methods of container lifting.

SECTION II: DOOR OPERATION

2.2 GENERAL

2.2.1. The TRICON is designed to be secured with a shipping seal when closed for transportation. This seal must be broken in order to open the doors. The right-hand door must be the first door opened and the last door closed.

2.3 OPENING PROCEDURE

⚠ WARNING

AVOID INJURY OR DEATH!

Container doors are heavy. Uncontrolled door swinging could cause serious injury, death or damage to other equipment. Always secure doors with locking bars or door tie-back ropes.

2.3.1. Open the container in the following manner:

1. Break the shipping seal and remove.
2. Open the right-hand door:
   a) Pivot the door catch on the right-hand lock bar assembly to the left.
   b) Lift up the latch on the right-hand lock bar assembly and pull the latch away from the door. Refer to **Figure 2.1**.

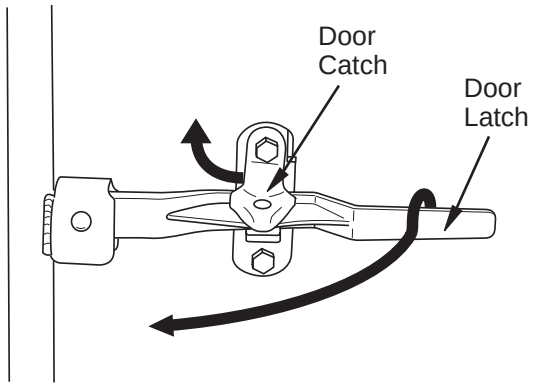


Figure 2.1 Door Latch Operation

3. Swing the right-hand door completely open and position it against the right side of the container. Fasten the door tie-back rope to the bottom of the right-hand inner lock bar assembly. Refer to **Figure 2.2**.

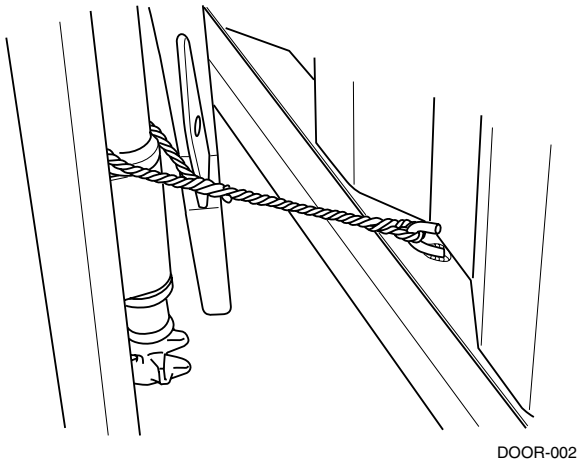


Figure 2.2 Door Tie-Back

4. Open the left-hand door in the same way as the right-hand door.

2.4 CLOSING PROCEDURE

⚠ WARNING

AVOID INJURY OR DEATH!

Container doors are heavy. Uncontrolled door swinging could cause serious injury, death or damage to other equipment. Always secure doors with locking bars or door tie-back ropes.

2.4.1. Close the container in the following manner:

1. Unfasten the door tie-back rope holding the left-hand door against the left side of the container.
2. Swing the left-hand door completely closed against the container.
3. Latch the left-hand door:
   a) Push the latch on the left-hand lock bar assembly toward the door and down into the retainer plate. Refer to **Figure 2.1**.
   b) Pivot the door catch on the left-hand lock bar assembly to the right and lock the latch to the retainer plate.
4. Close the right-hand door in the same way as the left-hand door.
5. Fasten a new shipping seal to the lock bar assembly.

SECTION III: TIE-DOWN OPERATION

CAUTION

Secure all cargo to the container using appropriate cargo management devices and tie-downs. Uncontrolled containers swinging or falling could cause equipment damage.

Always positively control containers during lifting or moving. Property damage or loss of mission effectiveness could result from failing to control the load during transit.

2.5 GENERAL

2.5.1. The TRICON Type 1 models are designed with 20 recessed wall tie-down rings, 10 corner post tie-down rings and 10 door corner post tie-down rings which can be used to secure cargo.

2.5.2. The TRICON Type 2 models are designed with 16 recessed wall tie-down rings which can be used to secure cargo.

2.5.3. The recessed wall tie-downs are located on the walls inside the container for the purpose of securing cargo. The corner tie-downs are located on the corners inside the container for the purpose of securing cargo to the front and rear of the container. Cargo can be secured to the tie-downs using rope or webbing.

2.6 TIE-DOWN PROCEDURE

2.6.1. To secure the tie-down to the container:

1. Feed the end of the tie-down strap through the tie-down ring.
2. Feed the end of the tie-down strap underneath the buckle, then up and through the buckle. Refer to **Figure 2.3**.

Figure 2.3 Tie-Down

SECTION IV: DECKING / SHORING BEAM OPERATION

CAUTION
Secure all cargo to the container using appropriate cargo management devices and tie-downs. Uncontrolled containers swinging or falling could cause equipment damage. **Always positively control containers during lifting or moving. Property damage or loss of mission effectiveness could result from failing to control the load during transit.**

2.7 GENERAL

2.7.1. The TRICON Type I and Type II models may be equipped with 15 decking/shoring beams. These devices are designed to help manage cargo and provide for shelving. Each beam is a freely telescoping device that attaches to a system of ten vertical logistic tracks built into the sides to the containers. The decking/shoring beam can be used in sets of two, three, four or five, depending on the shelf loading requirements. The decking/shoring beams connect to a system of five vertical tracks on each side of the containers. Up to five sets of decking/shoring beams can be positioned at evenly to support shelving.

2.8 INSERTING

1. Pull the release mechanism located at the end of the decking/shoring beam toward the center of the beam.

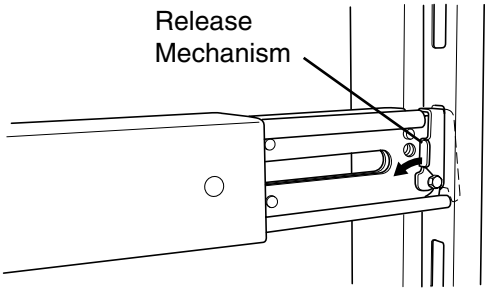


Figure 2.4 Shoring Beam

2. Place the end of the decking/shoring beam into the track located on the inside wall of the container as shown in **Figure 2.4**.
3. Let go of the release mechanism to lock the end of the decking/shoring beam into place.
4. Repeat steps 1 through 3 on the other side of the Beam.
5. To remove the beam, pull both release mechanisms inward at the same time.

SECTION V: CONTAINER COUPLING OPERATION

⚠ WARNING

AVOID INJURY OR DEATH!

Containers are heavy. Uncontrolled containers swinging or falling could cause serious injury or crush personnel to death. Always positively control containers and never enter underneath containers during lifting or moving.

CAUTION

Secure all cargo to the container using appropriate cargo management devices and tie-downs. Uncontrolled containers swinging or falling could cause equipment damage.

Always positively control containers during lifting or moving. Property damage or loss of mission effectiveness could result from failing to control the load during transit.

2.9 GENERAL

2.9.1. The TRICON can be coupled together with a system of horizontal twist-lock couplings. Up to three containers can be joined together with these horizontal twist-lock couplings.

NOTE

Coupling and uncoupling operations should take place on a flat, level and stable surface.

NOTE

Both coupling and uncoupling operations require a minimum of two operators. One operator should assist in the initial placement of the horizontal twist-lock couplings and drive the fork lift, while the other operator assists with the initial placement of horizontal twist-lock couplings and with lining up the horizontal twist-lock couplings into their respective apertures. Either operator can lock/unlock the horizontal twist-lock couplings.

2.10 CONNECTING CONTAINERS USING HORIZONTAL TWIST-LOCK COUPLINGS

⚠ CAUTION

Do not lift container sets that are not properly connected with horizontal twist-lock couplings. Failure to observe this warning may result in injury to personnel and damage to the equipment.

CAUTION

This is a tool-free operation. Do NOT hit horizontal twist-lock couplings with a hammer, or use loose "extension" levers to operate the coupling handle.

1. Using a fork lift, align two or three containers, with all doors exposed, next to each other with approximately a 3-foot gap between the corners.
2. Position the horizontal twist-lock coupling locking handle in the OPEN position so that the stem is aligned with the collar as shown in **Figure 2.5**.

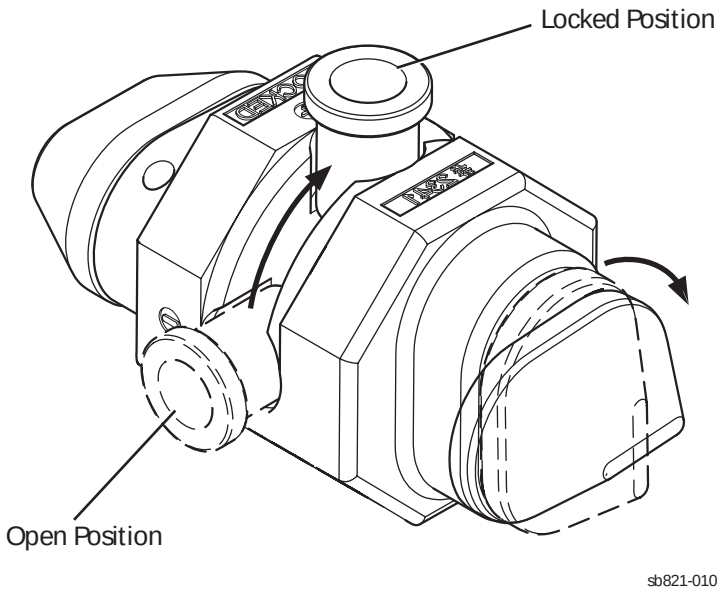


Figure 2.5 Horizontal Twist-lock Coupling

3. Insert the horizontal twist-lock coupling into the ISO aperture in upper left corner of container as shown in **Figure 2.6**.

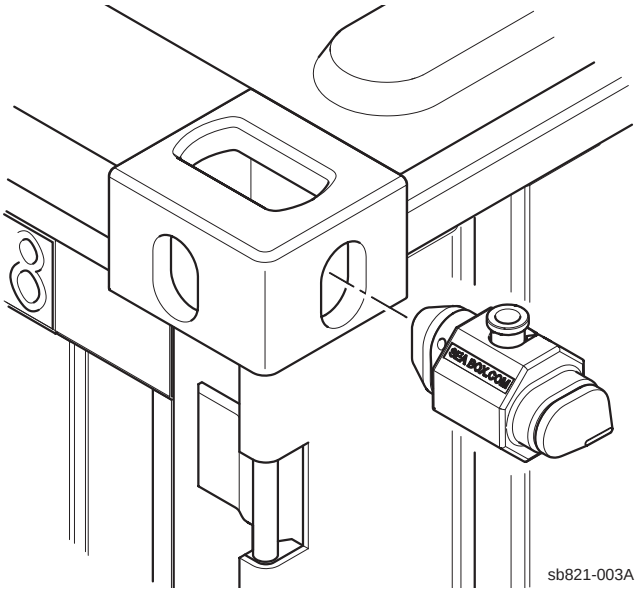


Figure 2.6 Container Connection, View 1

4. Rotate the body of the twist-lock coupling 90° so that it locks into place as shown in **Figure 2.7**.

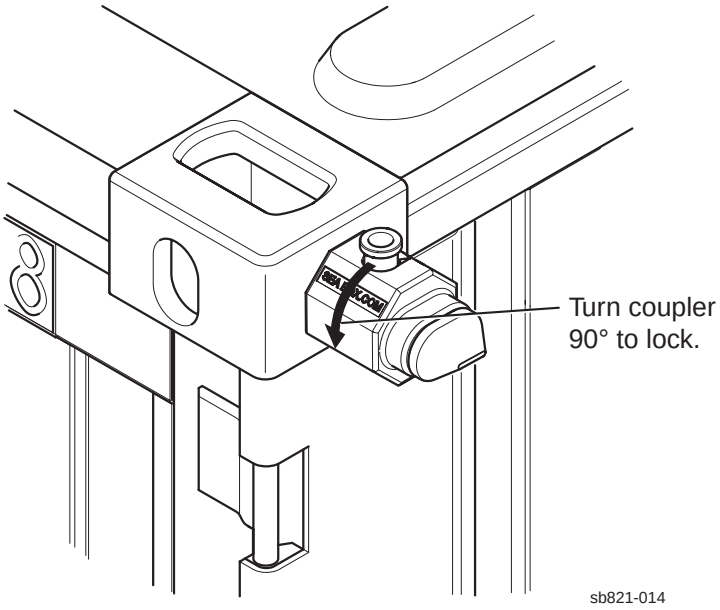


Figure 2.7 Container Connection, View 2

5. Ensure that the locking handle is in the OPEN position and that the horizontal twist-lock coupling is positioned to mate with the ISO aperture of the second container as shown in **Figure 2.8**.

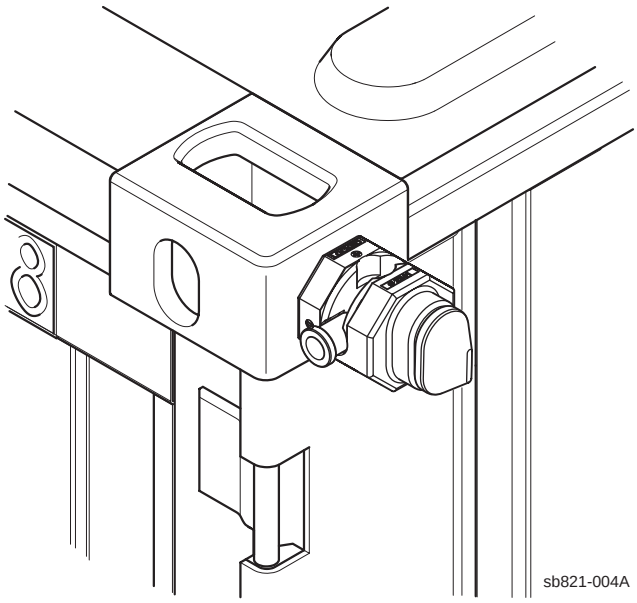


Figure 2.8 Container Connection, View 3

6. Insert the second, third and fourth horizontal twist-lock couplings in the remaining ISO apertures.
7. Repeat steps (1) through (5) on the additional twist-lock couplings.

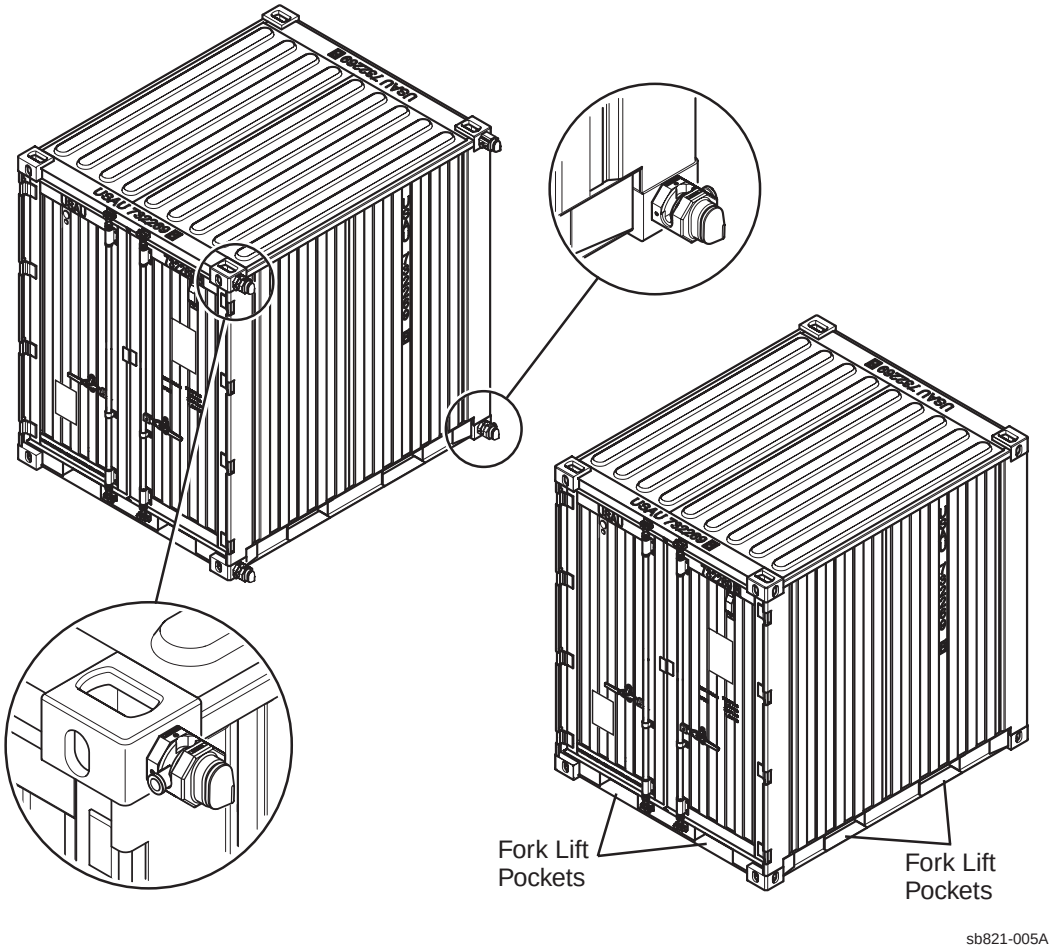


Figure 2.9 Container Connection, View 3

8. Using a fork lift, slide the mating container onto the moveable cone of the couplings so the container is flush against the surface of the twist-lock coupling bodies.
9. Rotate the twist-lock coupling handles into the LOCKED position as shown in **Figure 2.10**. Release the handle on all four couplings to secure containers.

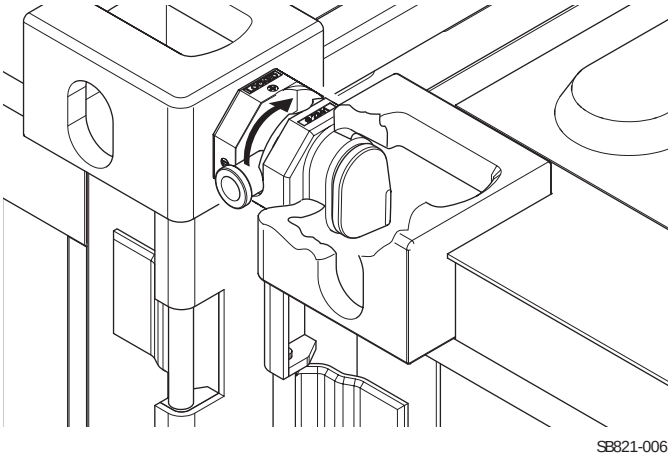


Figure 2.10 Container Connection, View 4

CAUTION

This is a tool-free operation. Do NOT hit horizontal twist-lock couplings with a hammer, or use loose "extension" levers to operate the coupling handle.

NOTE

The horizontal twist-lock coupling handle should move freely from the OPEN to the LOCKED position. If the twist-lock coupling handle cannot be manually moved into the LOCKED position, use a fork lift to reposition one of the containers so they are aligned properly. DO NOT ATTEMPT TO FORCE THE TWIST-LOCK COUPLING HANDLE.

10. Reverse this procedure to disengage the couplings.

SECTION VI: PREPARATION FOR SHIPPING

⚠ WARNING

AVOID DEATH OR INJURY!

Perform all inspections as specified. DEATH or serious injury could result if inspection is not performed as specified in this manual.

2.11 CONTAINER INSPECTION AND REINSPECTION

2.11.1. A container is unacceptable for loading with any type of cargo if the DD Form 2282 has expired or indicates that it will expire within 60 days. A CSC reinspection must be performed and the container certified as acceptable by a certified inspector before the container can be used. Only certified inspectors are permitted to apply new DD Form 2282 decals.

2.11.2. Even if the DD Form 2282 is current, a preload inspection MUST be performed before a container can be considered acceptable for loading. The preloading, or servicability, inspection is to ensure that there has been no damage to the container since the decal was applied. The preloading inspection DOES NOT need to be performed by a certified inspector. However, the person performing the inspection must be experienced in detecting structural damage.

For example: personnel are considered to be fully qualified if they have received formal training at one point in time and are knowledgeable in the area od detecting structural damage.

2.11.3. Refer to *Chapter 4: “Unit Preventive Maintenance, Checks and Services (PMCS)” on page 4-1* to ensure that a container is suitable for shipping.

2.11.4. Refer to *Appendix A: “Inspection Checklist" on page A-1* for a copy of the “CSC Recertification Inspection Checklist.” This checklist can be used to prepare for container recertification.

CHAPTER 3: TOOLS AND TEST EQUIPMENT

SECTION I : NECESSARY TOOLS FOR INSPECTION AND REPAIR PROCEDURES

3.1 GENERAL

3.1.1. The following suggested tools list is taken from the *MIL-HDBK-138B*. In addition to the standard issue #2 Common Tool Kit with Supplements, this list represents the necessary tools for container inspection and repair procedures.

3.2 TOOLS AND TEST EQUIPMENT

3.2.1. **Measuring Tape (Ruler).** A measuring tape (ruler) is required to check dimensional tolerances and container alignment.

3.2.2. **Welder's Hammer.** A welder's hammer (NSN 5120-00-240-3096 or equivalent) is helpful in determining the strength of welds or steel structural components. Refer to **Figure 3.1**.

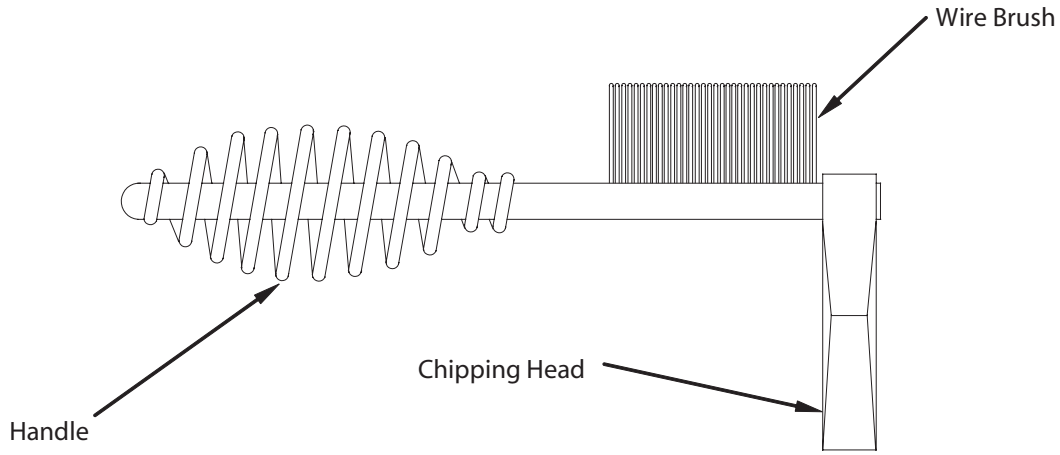


Figure 3.1 Welder's Hammer

3.2.3. **Ladder.** A ladder or other safe means for accessing the top of the container is recommended.

3.2.4. Inspection Stands. Figure 3.2 depicts the implementation of container inspection stands. Inspection stands provide a safe means for supporting the empty container to enable proper viewing of the container understructure. Full size engineering drawings that provide information for the construction of container inspection stands can be obtained by sending a request to U.S. Army Defense Ammunition Center, ATTN: SOSAC-DET, 1 C Tree Road, Bldg 35, McAlester, OK 74501; commercial (918) 420-8071, DSN 956-8071, commercial fax (918) 420-8811, DSN 956-8811; E-mail sosac-det@army.mil. Please specify drawing number AC200000210.

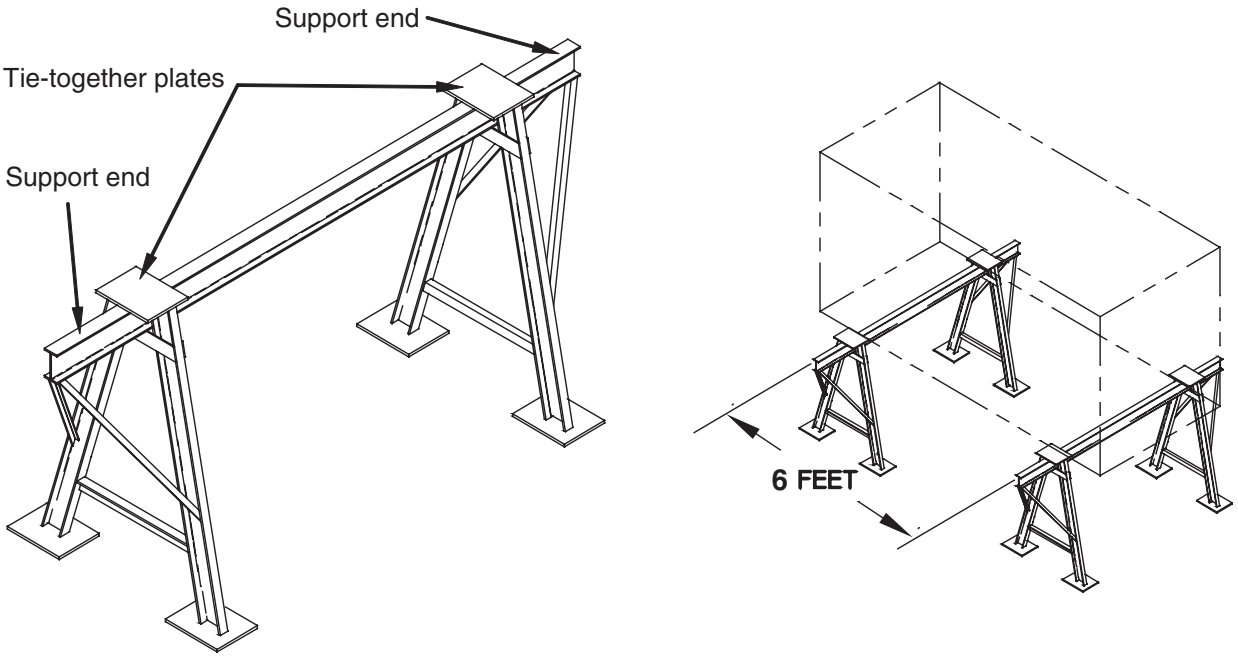


Figure 3.2 Container Inspection Stands

a) The container inspection stands are used in pairs to support a MILVAN or other international shipping container at an elevated level for the repair or inspection of the container's underside. The stands are set up with the support ends 6' apart so that the container, when on the stands, will overhang one to two feet at either end. The length of the support beam is to ensure a clear view of the underside of the container without interference of the support bracing. It is intended that the container will be resting on its side rails between the tie-together plates.

NOTE

DOD personnel should also refer to service specific safety guidelines about "Working Under a Suspended Load" as well as Technical Bulletin (10) 43-0142 which provides guidance for the "Safety Inspection and Testing of Devices." American National Standards Institute (ANSI) standard B30.1 for "Jacks" is also applicable.

3.2.5. Flashlight. A flashlight improves visual acuity, especially during examination of the interior or the recesses of the understructure.

CHAPTER 4: UNIT TASKS

SECTION I : UNIT PREVENTIVE MAINTENANCE, CHECKS AND SERVICE (PMCS)

4.1 GENERAL PREVENTIVE MAINTENANCE, CHECKS AND SERVICE (PMCS)

⚠ WARNING

AVOID DEATH OR INJURY!

Perform all inspections as specified. DEATH or serious injury could result if inspection is not performed as specified in this manual.

4.1.1. **Table 4.1** lists the unit preventive maintenance, checks and service (PMCS) that should be performed at regular intervals. These checks and services are listed in the following table, arranged and numbered in a logical sequence.

NOTE

Normal wear including oxidation (rust), slight dents and scratches, and other damage that does not affect the serviceability or structural integrity of the container is permissible. Pinhole light leaks or porosity in seam welds between panels or in edge welds around the perimeter of a wall or roof panels and pin hole light leaks around door panels are permissible.

4.1.2. Refer to the corresponding maintenance section(s) to correct any defect(s) that would make the container non-mission capable.

Table 4.1 Unit PMCS

BEFORE		
Item to Check/Service	**Procedure**	**Not Fully Mission Capable If:**
Doors & Panels	1. Check that doors and panels are in place.	1. A crack, break, cut, tear, puncture, or corrosive failure in any primary structural component.
	2. Check doors and panels for cracks, dents, and missing hardware.	2. A missing, cracked, or broken weld at the juncture between any primary structural components.
		3. A loose or missing fastener at the juncture between any primary structural components.
		4. Any deformation such as a dent, bend or bow in any primary structural component that is in excess of ISO external dimensional tolerances.
		5. An improper splice (e.g. less than 6" long) in any primary structural component.
		6. Any damage to or degradation within a structural component which could place any person in danger during subsequent handling, stacking, or transport of the intermodal container.
		*** Major defects must be repaired at the DS level; evacuate to DS Maintenance facility and refer to *Chapter 5: "Direct Support Tasks" on page 5-1.***
Container Interior	Use a broom or vacuum cleaner, as appropriate, to clean dirt from container interior.	
Vents	Check for loose or missing vent.	Vent is missing or not fully secured - *Refer to "Vent Removal and Replacement" on page 4-11*.
Tie-Downs	Check for bent or broken tie-downs.	
Data Plates	Check for legibility and loose or missing hardware.	Information plate cannot be read - *Refer to "Data Plate Removal and Replacement" on page 4-19.*

DURING		
Door Hinges	Check for free movement.	Doors are rusted closed - *Refer to "Lubrication Instructions" on page 4-3.*

AFTER		
Container Interior	Use a broom or vacuum cleaner as appropriate to clean dirt from container interior.	
Container Exterior	Wash container exterior with a suitable detergent. Thoroughly rinse with fresh water and allow to air dry.	
Vents	Check for loose or missing vent.	Vent is missing or not fully secured - *Refer to "Vent Removal and Replacement" on page 4-11*.
Tie-Downs	Check for bent or broken tie-downs.	
Data Plates	Check for legibility and loose or missing hardware.	Information plate is loose, missing or cannot be read - *Refer to "Data Plate Removal and Replacement" on page 4-19.*
Doors & Panels	Lubricate the door hinges as required.	Doors are rusted closed - *Refer to "Lubrication Instructions" on page 4-3.*TM

SECTION II : LUBRICATION INSTRUCTIONS

4.2 LUBRICATION

4.2.1. The only mechanical items which may require lubrication are the hinges and the locks on the container doors. These points should be checked and lubricated as necessary.

4.2.2. **Door Hinges.** The hinge assemblies on these containers are not equipped with zerk fittings. A small hole in the hinge body permits lubrication. Using a caulking gun and grease tube, inject the hinge assembly until grease emerges from the hinge gap. Be sure to wipe off all excess grease with a cloth or paper towel.

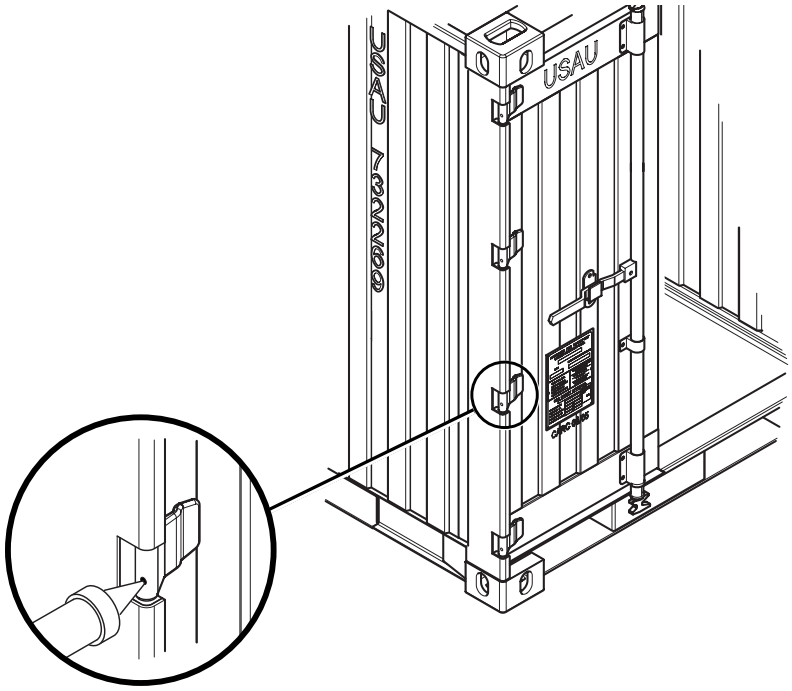


Figure 4.1 Hinge Lubrication

4.2.3. **Locking Bar Assemblies.** A few drops of light oil should be applied to other pivot points and linkages of the locking bar assemblies to prevent stiffness or binding. Be sure to wipe off all excess oil with a cloth or paper towel. Graphite may be used as an alternative lubricant during extreme cold weather operation.

SECTION III: DOOR GASKET REMOVAL AND REPLACEMENT

4.3 INITIAL SETUP

4.3.1. Tools and Materials:

- Caulk gun
- Hand drill
- 3/16" drill bit (cobalt recommended)
- Rivet tool
- Scraping tool
- Polyurethane or butyl sealant

4.3.2. Task Time: 1.5 hours

4.4 DOOR GASKET REMOVAL

⚠ WARNING

AVOID BLINDNESS!

Use eye protection when drilling or cutting. Flying debris during drilling can cause eye injury resulting in permanent blindness.

⚠ WARNING

AVOID LONG-TERM INJURY!

Make sure to use lifting devices rated for a minimum of 10,000 lbs (4536 kg). Using lesser rated equipment could result in serious injury or death.

NOTE

It will be necessary to raise the container above the floor level to gain access to the seals on the bottom door edge.

NOTE

Removal of the seals is the same for the left-hand and right-hand doors.

1. Drill out each of the rivets using a 3/16" drill bit as in **Figure 4.2**. The left-hand door does not have rivets on the edge that mates with the right-hand door.

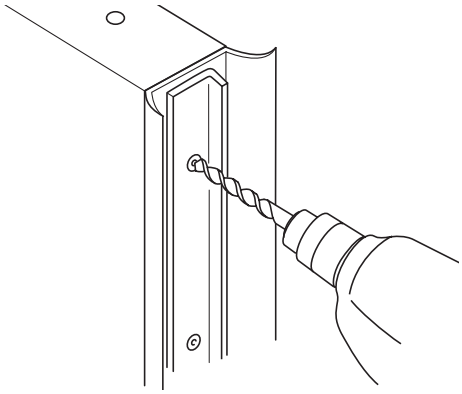


Figure 4.2 Gasket Removal, View 1

2. Remove all of the short carriers and long carriers. The right-hand door has carriers on all four edges. Refer to **Figure 4.3.** The left-hand door does not have carriers on the edge that mates with the right-hand door.

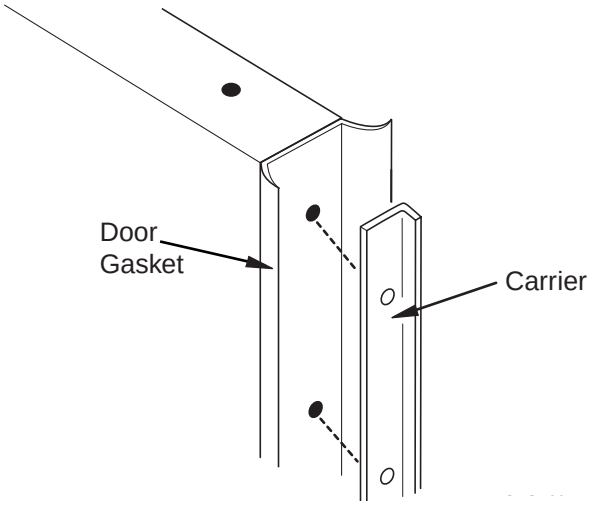


Figure 4.3 Gasket Removal, View 2

3. Remove and discard all of the seals.
4. Scrape and clean all of the door edges to remove debris left behind by the old gasket.

4.5 DOOR GASKET INSTALLATION

⚠ WARNING

AVOID BLINDNESS!

Use eye protection when drilling or cutting. Flying debris during drilling can cause eye injury resulting in permanent blindness.

4.5.1. Left-hand Door

1. Apply a thin strip of polyurethane sealant to the inside of the left-hand door seal as shown in **Figure 4.4**.

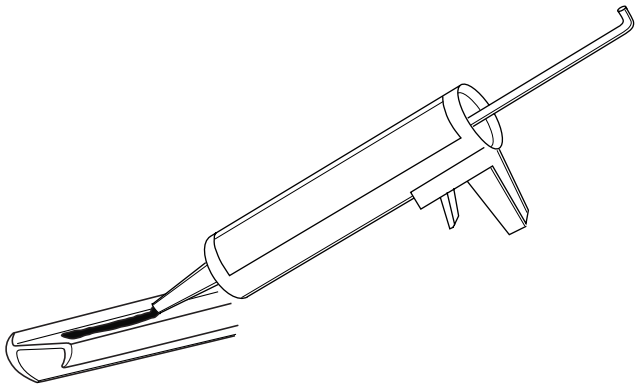


Figure 4.4 New Gasket Installation, View 1

2. Stretch the C-shaped seal around the left-hand door with the long end of the seal extending around the outside edge of the door. Make sure the seal is positioned so that the large, curved lip of the seal is on the outside portion of the door and extends over the end. Refer to **Figure 4.5.**

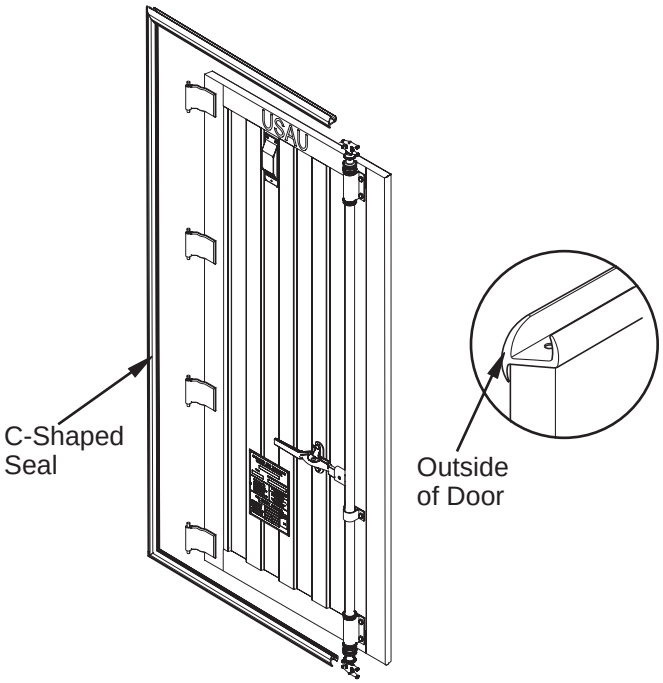


Figure 4.5 New Gasket Installation, View 2

3. Position the long carrier against the seal on the outside edge of the left-hand door. Insert the carrier into the seal by placing it vertically and the laying it down into the seal. Refer to **Figure 4.6.**

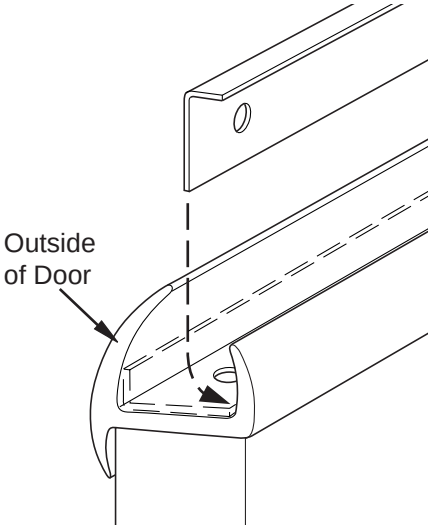


Figure 4.6 New Gasket Installation, View 3

4. Align the holes of the long carrier with the existing holes in the door. Refer to **Figure 4.7**.

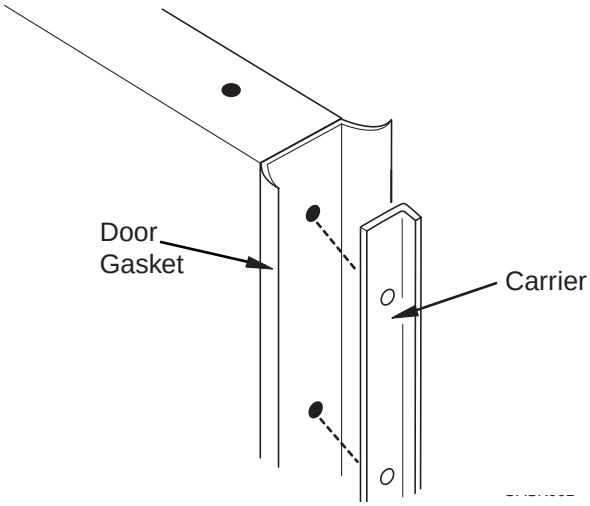


Figure 4.7 New Gasket Installation, View 4

5. Install a rivet in each of the carrier holes.
6. Repeat Steps 3 through 5 with the two (2) short carriers.
7. Trim the ends of the seal at the top and the bottom of the door so they extend 1/8" beyond the inside door edge as in **Figure 4.8.**

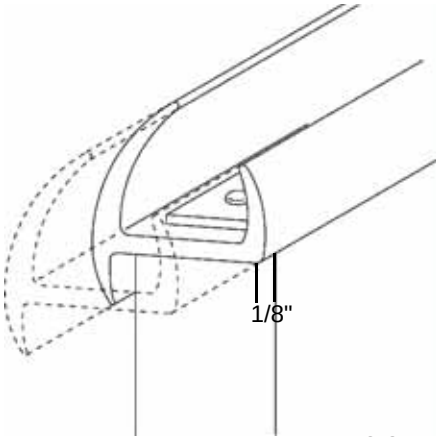


Figure 4.8 New Gasket Installation, View 5

8. Apply a thin bead of polyurethane sealant over each of the rivets.
9. Starting 8" from the bottom of the door, apply a thin strip of polyurethane sealant around the edge of the new gasket. Refer to **Figure 4.9**.

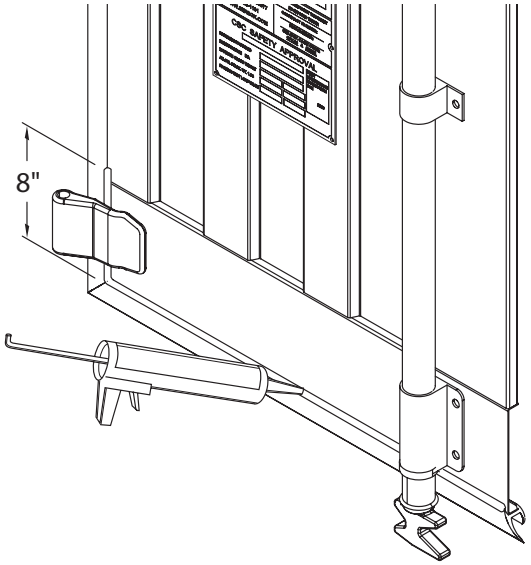


Figure 4.9 New Gasket Installation, View 6

4.5.2. Right-hand Door

1. Apply a thin strip of polyurethane sealant to the inside of the right-hand door seal as shown in **Figure 4.10**.

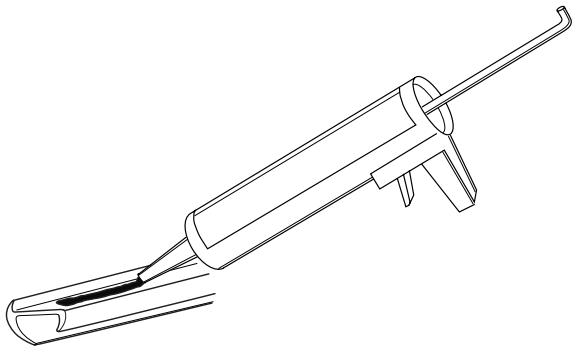


Figure 4.10 New Gasket Installation, View 7

2. Stretch the rectangular seal around the right-hand door. Make sure the large curved lip of the seal is on the outside portion of the door. Refer to **Figure 4.11**.

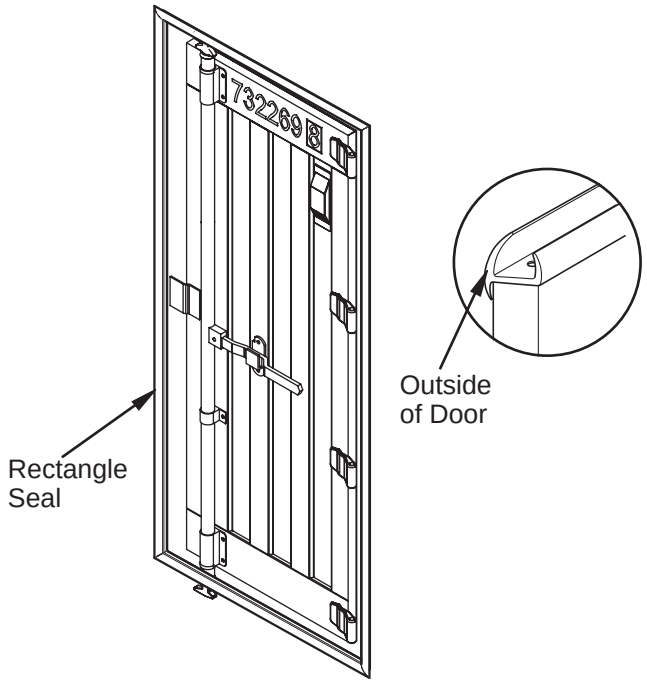


Figure 4.11 New Gasket Installation, View 8

3. Position the long carrier against the seal on the outside edge of the right-hand door. Insert the carrier into the seal by placing it vertically and the laying it down into the seal**.** Refer to **Figure 4.12**.

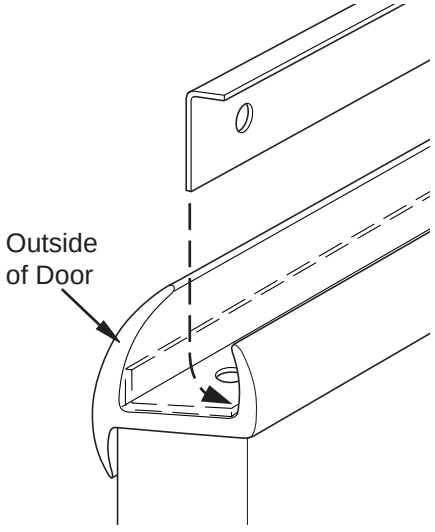


Figure 4.12 New Gasket Installation, View 9

4. Align the holes of the long carrier with the existing holes in the door. Refer to **Figure 4.13**.

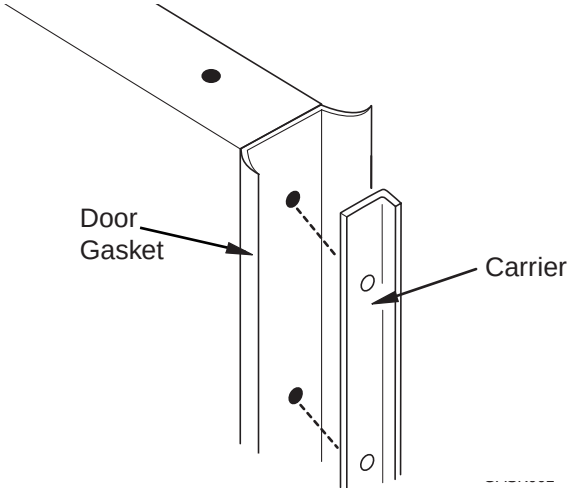


Figure 4.13 New Gasket Installation, View 10

5. Install a rivet in each of the carrier holes.
6. Repeat steps 11 and 12 with the long carrier on the inside edge of the right-hand door and the two short carriers.
7. Apply a thin bead of polyurethane sealant over each of the rivets.
8. Starting 8" from the bottom of the door, apply a thin bead of polyurethane sealant around the edge of the new gasket. Refer to **Figure 4.14**.

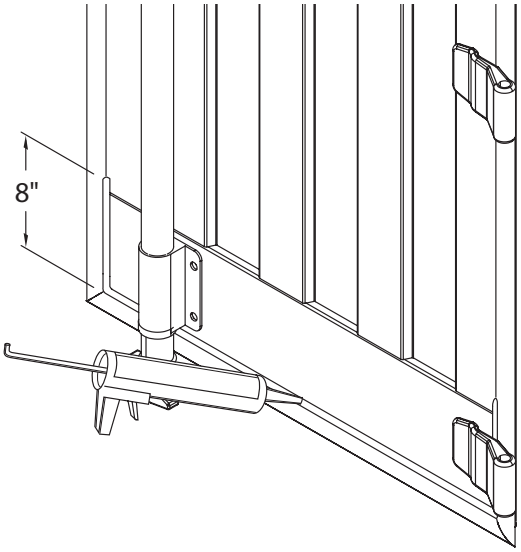


Figure 4.14 New Gasket Installation, View 11

SECTION IV: VENT REMOVAL AND REPLACEMENT

⚠ WARNING

AVOID BLINDNESS!

Use eye protection when removing Huck bolts. Flying debris can cause eye injury resulting in permanent blindness.

⚠ WARNING

AVOID BLINDNESS!

Use eye protection when drilling or cutting. Flying debris during drilling can cause eye injury resulting in permanent blindness.

4.6 INITIAL SETUP

4.6.1. Tools and Materials:

- Hand drill or cut-off wheel
- 3/16" drill bit (if using hand drill)
- Hammer and punch
- Rivet tool
- Caulk gun
- Polyurethane or butyl sealant

4.6.2. Estimated Task Time: 1 hour

4.7 VENT REMOVAL

1. Use 3/16" diameter drill or a cut-off wheel to remove the three rivets or Huck bolts securing the vent to the container door.

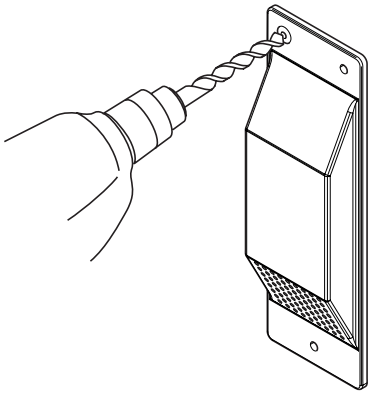


Figure 4.15 Vent Removal, View 1

2. Remove and properly discard the damaged vent.
3. Clean the area where the new vent will be installed, making sure to remove any excess sealant or metal shards.

4.8 VENT INSTALLATION

1. Position the new ventilator over the existing holes in the container.
2. Install the rivets using a rivet tool.
3. Apply a thin coat of sealant around the top of the vent/container seam and along both sides as in **Figure 4.16**.

NOTE

DO NOT apply sealant to the bottom seam of the vent.

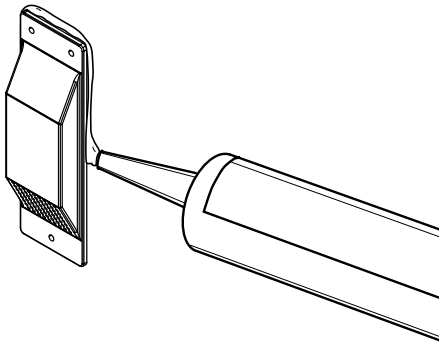


Figure 4.16 Vent Installation, View 1

4. Spot paint as necessary. *Refer to "Spot Painting" on page 4-21.*

SECTION V: LOCKING BAR ASSEMBLY REMOVAL AND REPLACEMENT

4.9 INITIAL SETUP

4.9.1. Tools and Materials:

- Socket wrench
- Welding torch

4.9.2. Estimated Task Time: 0.5 hours

4.10 LOCKING BAR ASSEMBLY REMOVAL

⚠ WARNING

AVOID LONG-TERM INJURY OR DEATH!

Container doors are heavy. Uncontrolled door swinging could cause serious injury, death or damage to other equipment. Always secure doors with locking bars or door tie-back ropes.

⚠ WARNING

AVOID BLINDNESS!

Use eye protection when removing Huck bolts. Flying debris can cause eye injury resulting in permanent blindness.

4.10.1. Right-hand Door

1. Open the container door with the broken locking bar assembly.
2. Identify the rivet collars on the locking bar assembly (these are the smooth “collars” on the inside of the door). Refer to figure **Figure 4.17**.

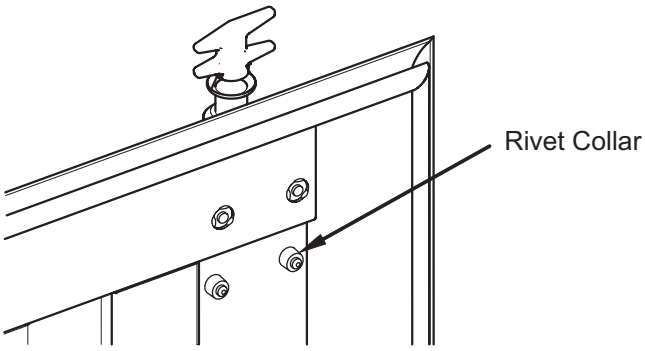


Figure 4.17 Locking Bar Removal, View 1

3. Split these collars using a suitable tool, and remove the collar and rivet body.
4. Remove the remaining nuts and bolts securing the locking bar assembly to the door.

4.10.2. Left-hand Door

1. Open the container door with the broken locking bar assembly.
2. Remove remaining nuts and bolts that secure the locking bar assembly to the door.

4.11 Locking Bar Assembly Installation

1. Line up the holes on the new locking bar assembly with the existing holes in the container door. Refer to **Figure 4.18** (primary locking bar shown in figure).

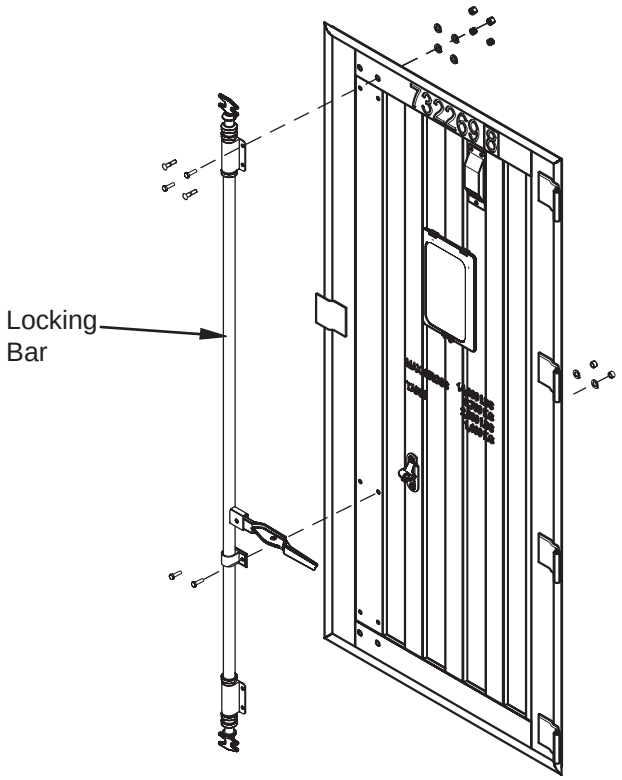


Figure 4.18 Locking Bar Replacement, View 1

2. Insert the bolts through the locking bar and container door, and attach the lock washers and nuts. Start the bolts on the inside of the door by hand-tightening them.

CAUTION
Start the bolts by hand-tightening them in order to prevent damage to the equipment.

3. Tighten all of the bolts.
4. Tack weld a minimum of six bolts on the outside of the door to make the locking bar assembly tamper-proof (primary locking bar only). *Refer to "Welding and Repair Procedures" on page 5-12.*
5. Secure the container door.
6. Spot paint as necessary. *Refer to "Spot Painting" on page 4-21.*

SECTION VI: DOOR HASP ASSEMBLY REMOVAL AND REPLACEMENT

4.12 INITIAL SETUP

4.12.1. Tools and Materials:

- Socket wrench
- Welding torch

4.12.2. Estimated Task Time: 0.5 hours

4.13 DOOR HASP ASSEMBLY REMOVAL

⚠ WARNING

AVOID LONG-TERM INJURY OR DEATH!

Container doors are heavy. Uncontrolled door swinging could cause serious injury, death or damage to other equipment. Always secure doors with locking bars or door tie-back ropes.

⚠ WARNING

AVOID BLINDNESS!

Use eye protection when removing Huck bolts. Flying debris can cause eye injury resulting in permanent blindness.

4.13.1. Right-hand Door

1. Open the container door with the broken door hasp assembly.
2. Identify the rivet collars on the door hasp assembly (these are the smooth “collars” on the inside of the door). Refer to **Figure 4.19**.

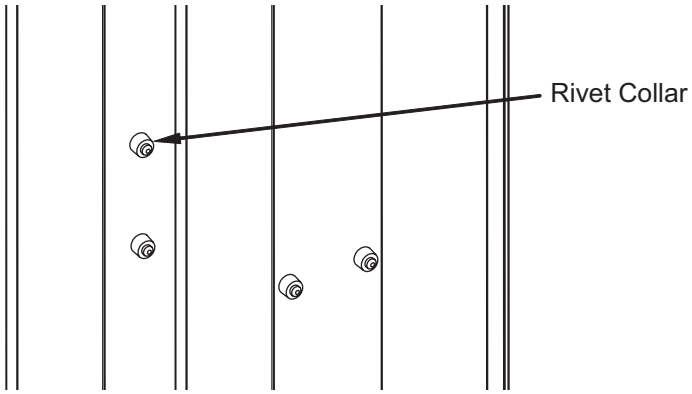


Figure 4.19 Door Hasp Removal, View 1

3. Split these collars using a suitable tool, and remove the collar and rivet body.
4. Remove the remaining nuts and bolts securing the door hasp assembly to the door.

4.13.2. Left-hand Door

1. Open the container door with the broken door hasp assembly.
2. Remove remaining nuts and bolts that secure the door hasp assembly to the door.

4.14 Door Hasp Assembly Installation

1. Line up the holes on the new locking bar assembly with the existing holes in the container door. Refer to **Figure 4.20**.

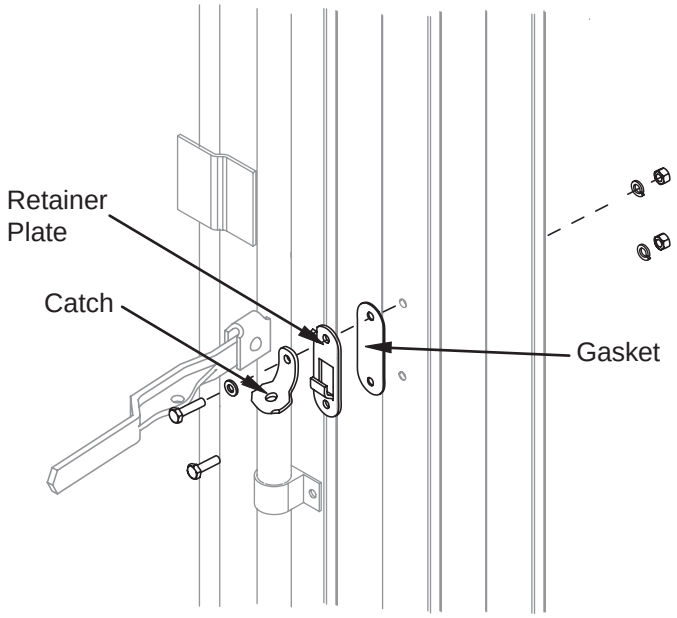


Figure 4.20 Door Hasp Replacement, View 1

2. Insert the bolts through the door hasp assembly and the container door, and attach the lock washers and nuts. Start the bolts on the inside of the door by hand-tightening them.

CAUTION
Start the bolts by hand-tightening them in order to prevent damage to the equipment.

3. Tighten all of the bolts.
4. Tack weld the bolts to make the door hasp assembly tamper-proof (right-hand door only). *Refer to "Welding and Repair Procedures" on page 5-12.*
5. Secure the container door.
6. Spot paint as necessary. *Refer to "Spot Painting" on page 4-21.*

SECTION VII: MANIFEST BOX REMOVAL AND REPLACEMENT

4.15 INITIAL SETUP

4.15.1. Tools and Materials:

- Hand drill
- 3/16" drill bit
- Caulk gun
- Polyurethane or butyl sealant

4.15.2. Estimated Task Time: 0.5 hours

4.16 MANIFEST BOX REMOVAL

⚠ WARNING

AVOID BLINDNESS!

Use eye protection when removing Huck bolts. Flying debris can cause eye injury resulting in permanent blindness.

1. With both inside and outside manifest boxes open, drill out the securing rivets using a 3/16" drill. Refer to **Figure 4.21**.

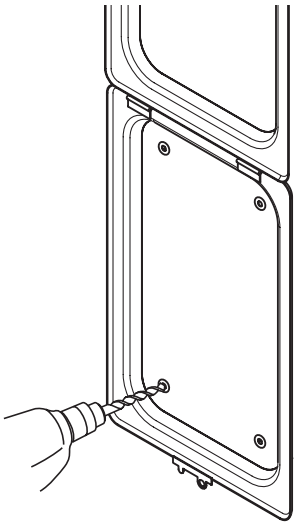


Figure 4.21 Manifest Box Removal, View 1

2. Salvage the spacers located between box and container door, if applicable.

NOTE

The manifest boxes may still adhere to door as a result of the silicone sealant used to seal the rivet holes.

3. Clean the area where the new manifest box will be installed, making sure to remove any excess sealant or metal shards.

4.17 MANIFEST BOX INSTALLATION

NOTE

This is a two person operation.

1. Apply a thin bead of silicon seal around the securement holes on the back of each manifest box. Refer to **Figure 4.22**.

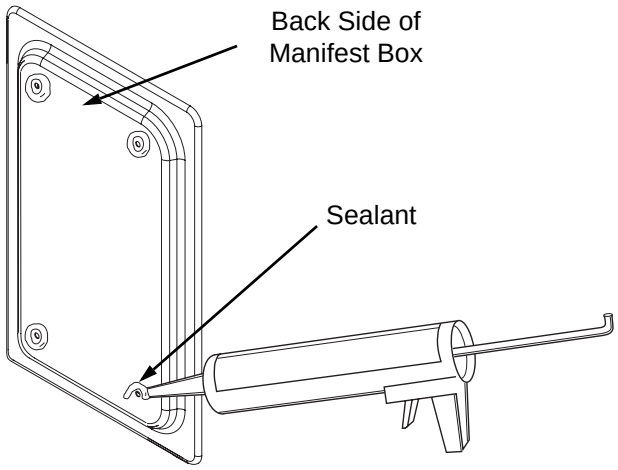


Figure 4.22 Manifest Box Replacement, View 1

2. One person should stand on one side of the door and line up the holes in one of the manifest boxes with the holes in the container door. Refer to **Figure 4.23**.

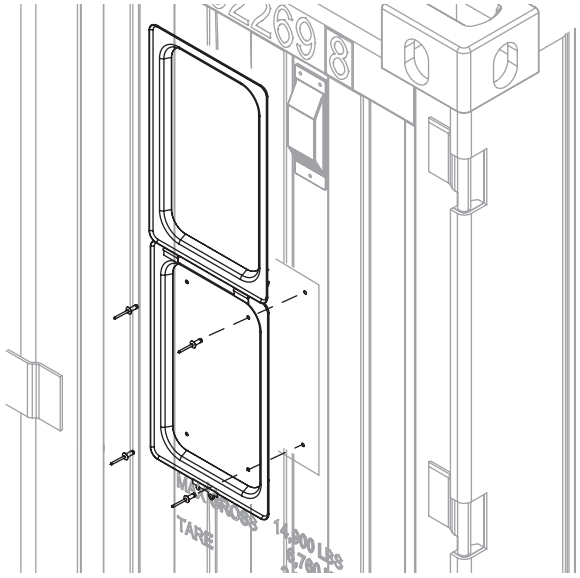


Figure 4.23 Manifest Box Replacement, View 2

3. Working on the opposite side of the door, the second person should insert holding rivets through the second manifest box, spacer, door, and the first manifest box.
4. Secure the rivets.
5. Close both manifest box doors.

SECTION VIII: DATA PLATE REMOVAL AND REPLACEMENT

4.18 INITIAL SETUP

4.18.1. Tools and Materials:

- Hand drill
- 3/16" drill bit
- Rivet gun
- Caulk gun
- Polyurethane or butyl sealant

4.18.2. Estimated Task Time: 0.5 hours

4.19 DATA PLATE REMOVAL

⚠ WARNING

AVOID BLINDNESS!

Use eye protection when drilling or cutting. Flying debris during drilling can cause eye injury resulting in permanent blindness.

1. Drill out rivets securing data plate to container door. Refer to **Figure 4.24**.

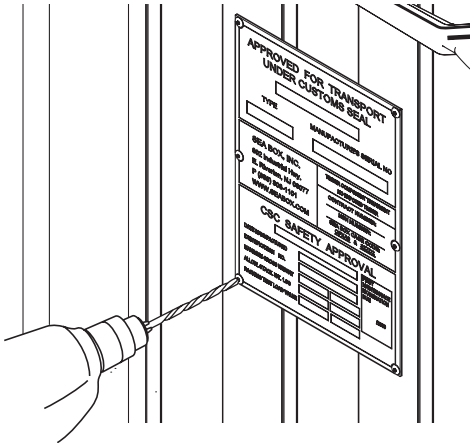


Figure 4.24 Data Plate Removal, View 1

2. Remove the old data plate.

NOTE

The data plate may still adhere to door as a result of the silicone sealant used to seal the perimeter of the data plate.

3. Clean the area where the new data plate will be installed, making sure to remove any excess sealant or metal shards.

4.20 DATA PLATE INSTALLATION

1. Position new data plate over the existing holes in the container. Refer to **Figure 4.25**.

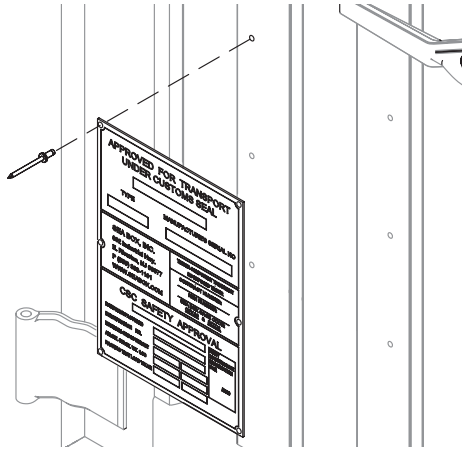


Figure 4.25 Data Plate Replacement, View 1

2. Install the rivets.
3. Seal the perimeter of the new data plate with small bead of silicone sealant.
4. Place small bead of sealant over each pop rivet to seal the holes.

SECTION IX: SPOT PAINTING

4.21 SPOT PAINTING PROCEDURES

⚠ WARNING

AVOID LONG-TERM HEALTH PROBLEMS!

Coating materials may contain dangerous chemical compounds with harmful vapors. Always use a respirator when painting. Always use eye protection and avoid contact with skin when painting. Consult the MSDS data before painting.

4.21.1. These coatings can be applied with a paint brush or sprayed. If an inspection indicates that a damaged coating renders a container unfit for use, repair the area as follows:

1. Prepare the surface(s) by scraping away any loose paint or material.
2. Apply the zinc rich primer coat paint, making sure to cover all bare surfaces.
3. Allow eight hours of drying time. More time is required if the ambient temperature is below 77° Fahrenheit.
4. Apply a second coat of Epoxy primer paint, making sure to cover all surfaces covered by the zinc rich primer coat paint.
5. Allow two hours of drying time. More time is required if the ambient temperature is below 77° Fahrenheit.
6. Apply a third top coat, making sure to cover all surfaces painted by the second coat.
7. Allow for seven days of drying time before returning the container to service. More time is required if the ambient temperature is below 77° Fahrenheit.

CHAPTER 5: DIRECT SUPPORT TASKS

SECTION I : DIRECT SUPPORT INSPECTION AND TROUBLESHOOTING

⚠ WARNING

AVOID DEATH OR INJURY!

Perform all inspections as specified. DEATH or serious injury could result if inspection is not performed as specified in this manual.

5.1 DOOR SIDES / ENDS INSPECTION AND TROUBLESHOOTING

5.1.1. Door Sides or Ends. Examine the door end(s) or side(s) of the container. Check main structural components of door frame for defects. Check condition and operation of doors and door hardware. Check ISO number for legibility and to assure it matches number annotated on inspection checklist.

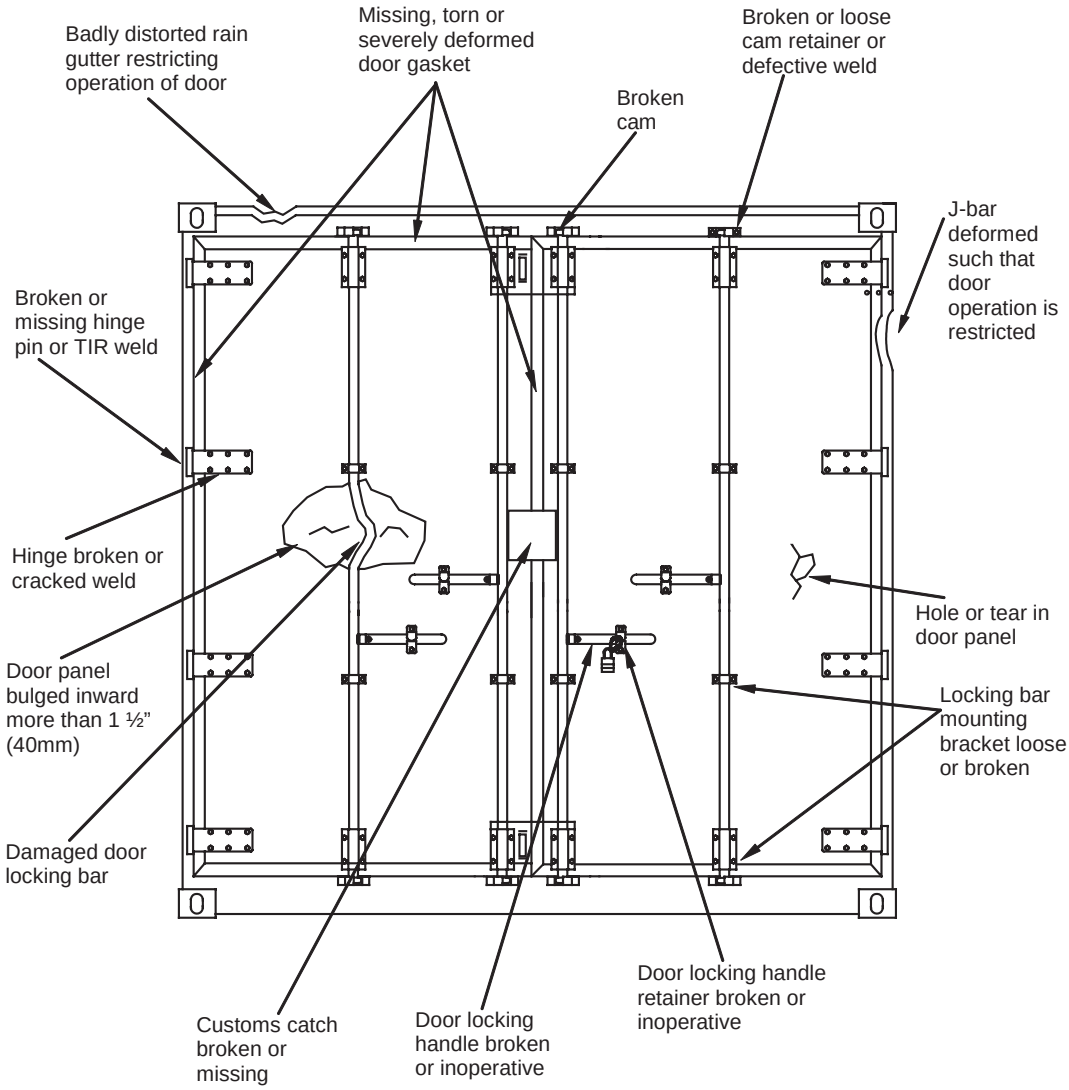

Badly distorted rain gutter restricting operation of door
Missing, torn or severely deformed door gasket
Broken cam
Broken or loose cam retainer or defective weld
J-bar deformed such that door operation is restricted
Broken or missing hinge pin or TIR weld
Hinge broken or cracked weld
Door panel bulged inward more than 1 ½" (40mm)
Damaged door locking bar
Hole or tear in door panel
Locking bar mounting bracket loose or broken
Customs catch broken or missing
Door locking handle broken or inoperative
Door locking handle retainer broken or inoperative

Figure 5.1 End Door Assembly Major Defects

5.1.2. To repair major defects to the door assembly, refer to *"Door Removal and Replacement" on page 5-7*.

5.2 CORNER POST INSPECTION AND TROUBLESHOOTING

5.2.1. A container is unacceptable if a corner post has any major defect. Refer to **Figure 5.2**.

5.2.2. Major defects include:

1. A dent or bend that is greater than 3/4" (19mm) in depth, regardless of length;
2. A crack, break, cut, tear, puncture, or corrosive failure;
3. A defective, cracked, or broken weld at the juncture with a corner fitting;
4. A loose or missing fastener at the juncture with a corner fitting (aluminum frame);
5. Any deformation such as a dent, bend or bow that is in excess of ISO external dimensional tolerances;
6. More than two splices or an improper splice; a splice must not extend through or across more than ½ the cross-sectional profile of the post;
7. Any splice in a steel corner post other than a butt welded insert or full profile splice;
8. Any splice on an aluminum corner post other than an overlap riveted splice.

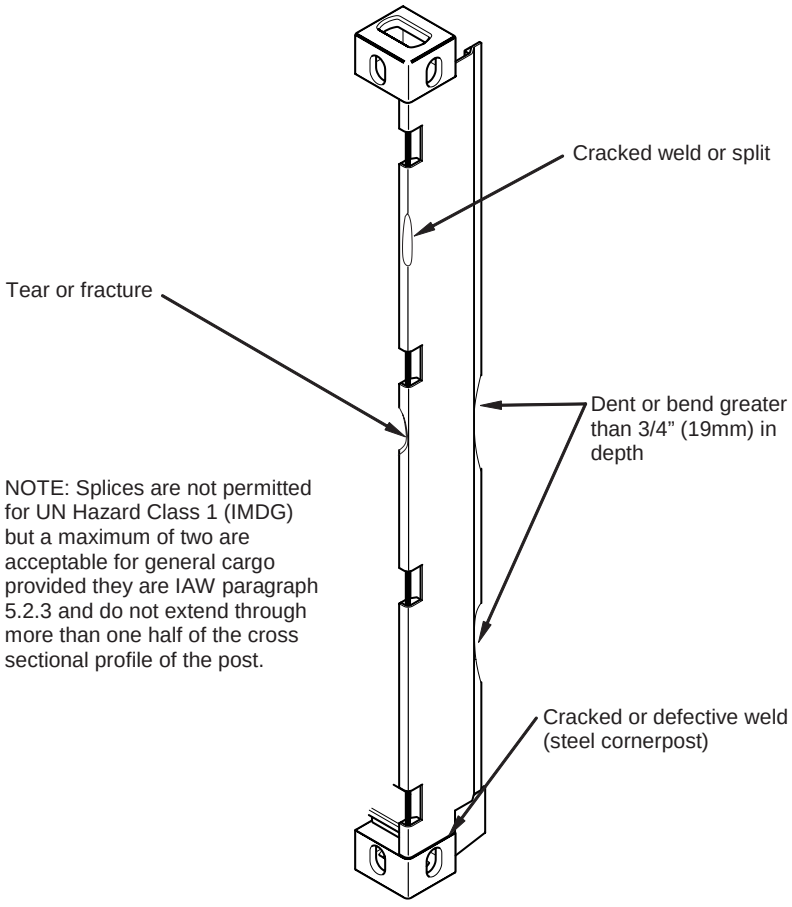

Cracked weld or split
Tear or fracture
Dent or bend greater than 3/4" (19mm) in depth
NOTE: Splices are not permitted for UN Hazard Class 1 (IMDG) but a maximum of two are acceptable for general cargo provided they are IAW paragraph 5.2.3 and do not extend through more than one half of the cross sectional profile of the post.
Cracked or defective weld (steel cornerpost)

Figure 5.2 Corner Post Damage

5.2.3. To repair major defects to the corner post, refer to *"Rail and Post Splicing" on page 5-13*.

5.3 End Rail Inspection and Troubleshooting

5.3.1. A container is unacceptable if an end rail has any major defect. Refer to **Figure 5.3**

5.3.2. Major defects include:

1. A dent or bend in the door header that is greater than 1-1/4" (32mm) in depth, regardless of length;
2. A dent or bend in the door sill that is greater than 1-9/16" (40mm) in depth, regardless of length;
3. A crack, break, cut, tear, puncture, or corrosive failure in either the door header, or the door sill;
4. A missing, cracked, or broken weld at the juncture between any primary structural components;
5. A loose or missing fastener at the juncture between any primary structural components;
6. Any deformation such as a dent, bend or bow in any primary structural component that is in excess of ISO external dimensional tolerances;
7. An improper splice in door sill or door header;
8. Any splice in a steel rail other than a butt welded insert or full profile splice;
9. Any splice on an aluminum rail other than an overlap riveted splice.

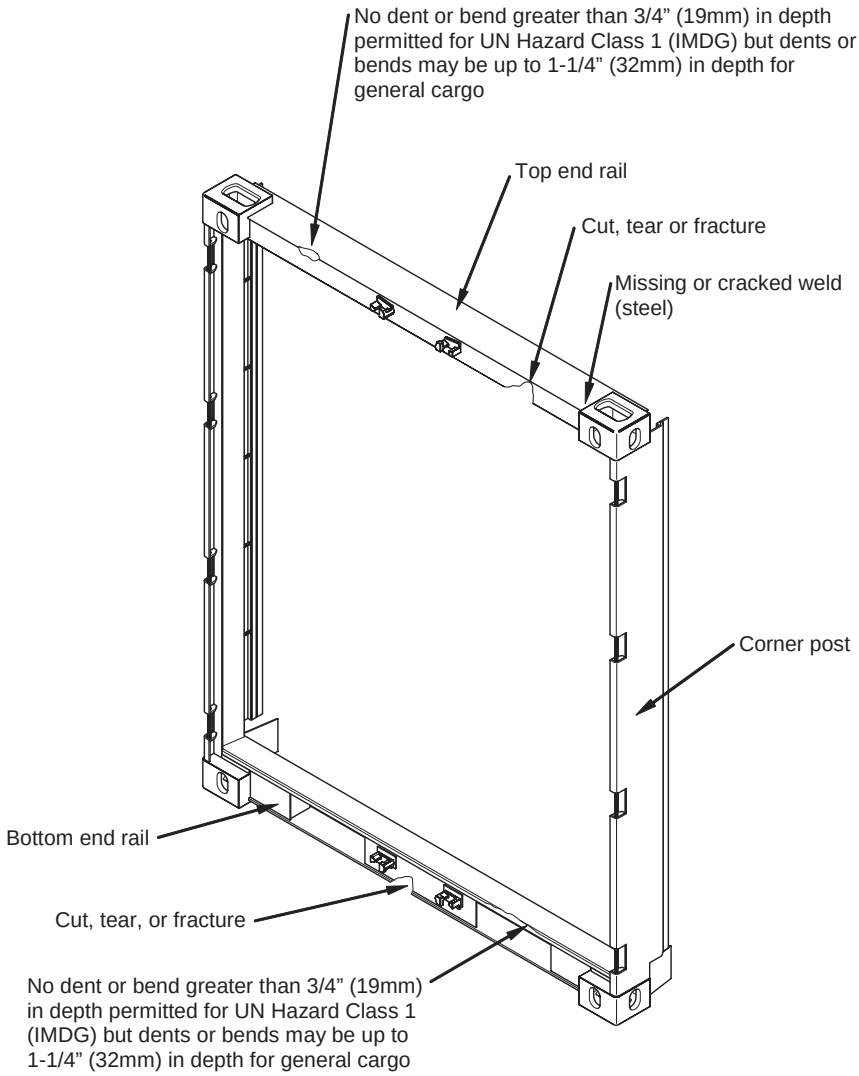

No dent or bend greater than 3/4” (19mm) in depth permitted for UN Hazard Class 1 (IMDG) but dents or bends may be up to 1-1/4” (32mm) in depth for general cargo
Top end rail
Cut, tear or fracture
Missing or cracked weld (steel)
Corner post
Bottom end rail
Cut, tear, or fracture
No dent or bend greater than 3/4” (19mm) in depth permitted for UN Hazard Class 1 (IMDG) but dents or bends may be up to 1-1/4” (32mm) in depth for general cargo

Figure 5.3 End Rail Major Defects

5.3.3. To repair major defects to the end rail, refer to *“Rail and Post Splicing” on page 5-13*.

5.4 PANEL INSPECTION AND TROUBLESHOOTING

5.4.1. A container is unacceptable if an end or side rail has any major defect.

5.4.2. Major defects include:

1. Any hole, tear, puncture, or corrosive failure in the panel, regardless of the material of construction;
2. Any broken weld at juncture with main structural rail or corner post;
3. A loose or missing fastener in an aluminum, sandwich, or FRP panel that is separated by less than 48" (1220mm) in any direction from another loose or missing fastener;
4. Inward bulging or denting of the panel that reduces cargo space by more than 1-1/2" (40mm) in any direction or that impedes cargo loading;
5. Outward bulging of the panel that extends beyond the outside surfaces of the corner fittings;
6. Delamination of the panel that is greater than 5" in diameter.

5.4.3. Side and End Wall Panel Trouble Shooting

A tautly drawn wire, string or other form of a long straight edge is needed to determine whether any portion of the container (e.g., a panel or a rail) protrudes past the outside surfaces of the corner fittings.

Refer to **Figure 5.4** for typical methods of checking for protrusions. Refer to **Figure 5.5** for methods of measuring damage to panels and rails.

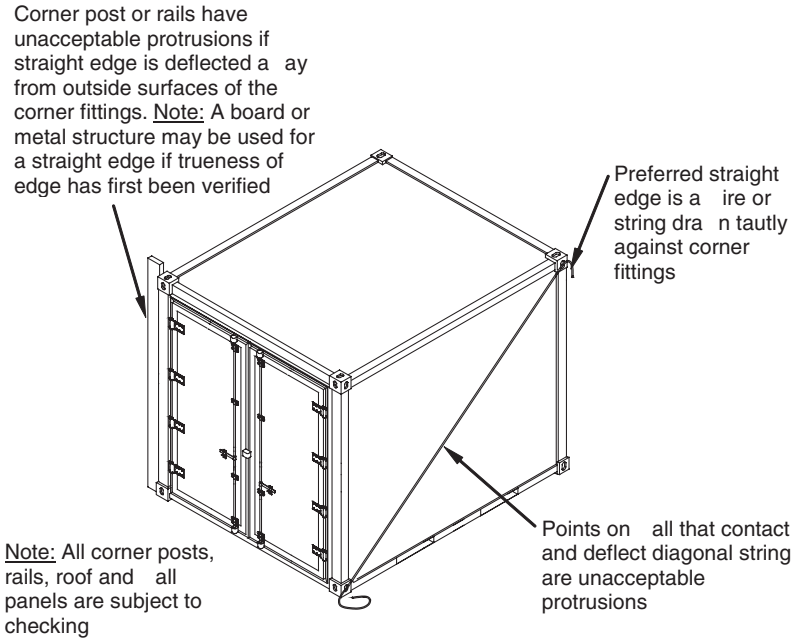

Corner post or rails have unacceptable protrusions if straight edge is deflected a ay from outside surfaces of the corner fittings. Note: A board or metal structure may be used for a straight edge if trueness of edge has first been verified
Preferred straight edge is a ire or string dra n tautly against corner fittings
Note: All corner posts, rails, roof and all panels are subject to checking
Points on all that contact and deflect diagonal string are unacceptable protrusions

Figure 5.4 Checking for Protrusions

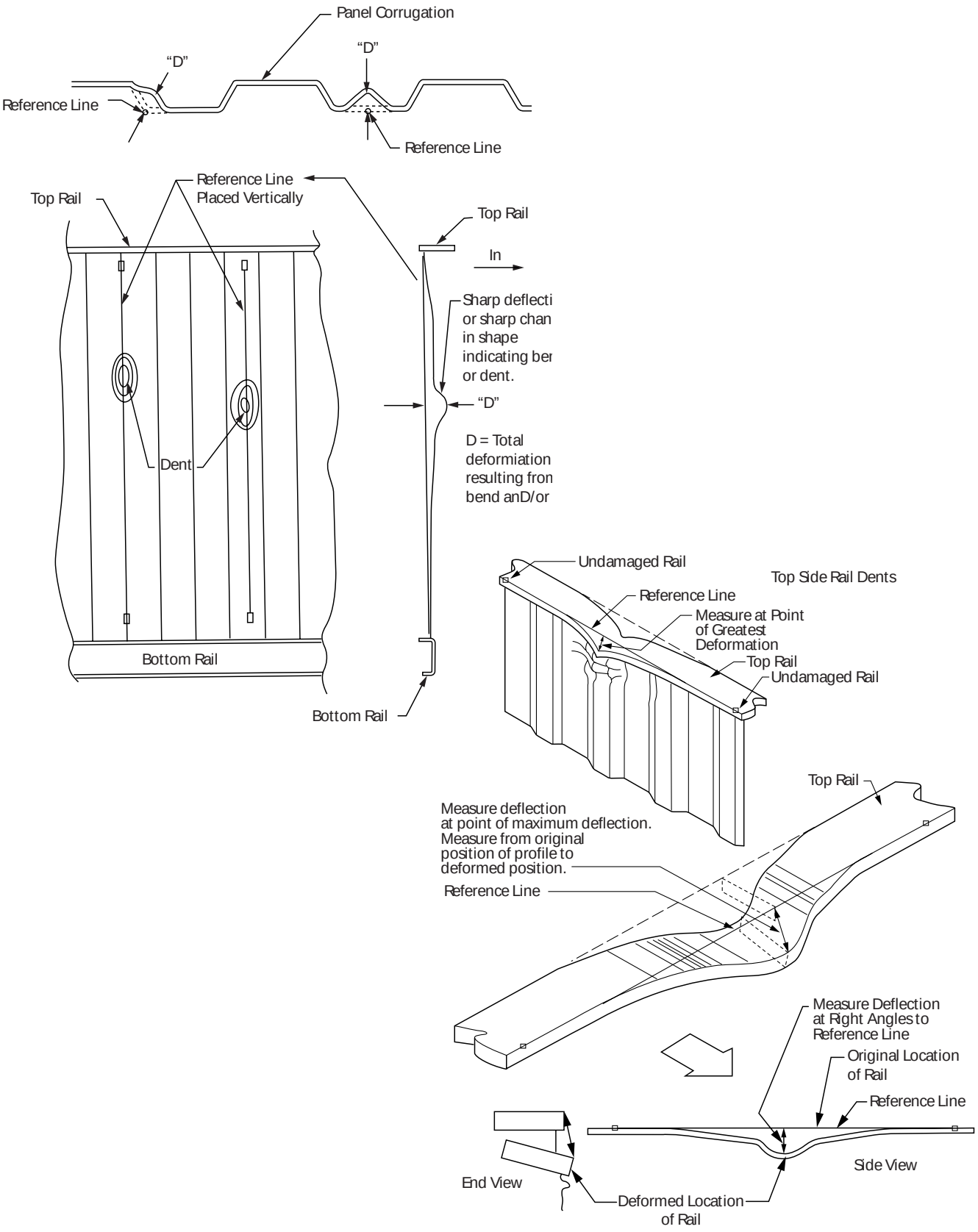


Figure 5.5 Measuring Damage to Panels and Rails

5.4.4. To repair major defects to panels or rails, refer to *"Rail and Post Splicing" on page 5-13* or *"Side and End Panel Repair" on page 5-16*.

5.5 ROOF ASSEMBLY INSPECTION AND TROUBLESHOOTING

5.5.1. A container is unacceptable if a roof assembly has any major defect. Refer to **Figure 5.6**.

5.5.2. Major defects include:

1. Any hole, tear, puncture, or corrosive failure in a panel, regardless of the material of construction;
2. Any broken weld at juncture with top rail or corner fitting;
3. Loose or missing fastener in aluminum, sandwich or FRP panel that is separated by less than 48" (1220mm) in any direction from another loose or missing fastener;
4. Inward bulging or denting of a panel that reduces cargo space by more than 1-1/2" (40mm) or that restricts cargo loading;
5. Outward bulging of a panel that extends beyond the top surface of the top corner fittings;
6. Any roof bow or beam missing, cut, broken, or has a weld or bracket torn loose from the top side rail;
7. Delamination of the panel that is greater than 5 inches in diameter.

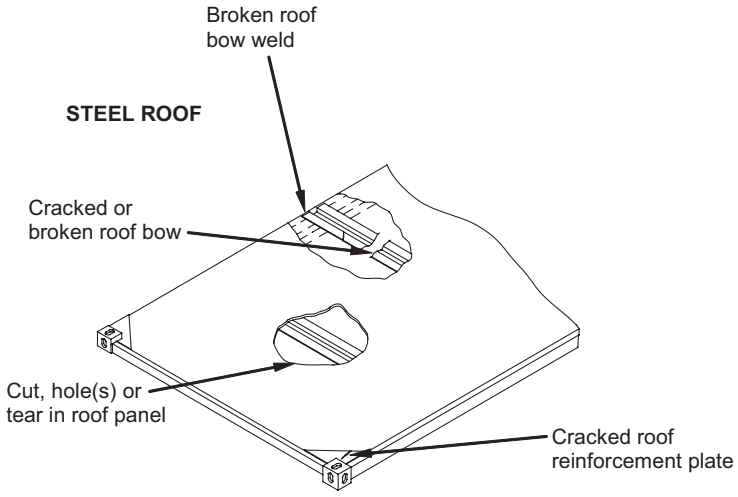


Figure 5.6 Roof Assembly Major Defects

5.5.3. To repair major defects to the roof assembly, refer to *"Acceptable Patching" on page 5-13*

SECTION II: DOOR REMOVAL AND REPLACEMENT

5.6 INITIAL SETUP

5.6.1. Tools and Materials:

- Cut-off wheel
- Hammer and punch
- Grinding tool
- Oxyacetylene torch
- Spot welding torch
- 2 personnel

5.6.2. Estimated Task Time: 2 hours

5.7 DOOR REMOVAL

⚠ WARNING

AVOID BLINDNESS OR BURNS!

Use eye protection when grinding. Use welding goggles and gloves when welding. Sparks, flashes and flying debris during welding or grinding can cause eye injury resulting in permanent blindness.

⚠ WARNING

AVOID BLINDNESS!

Use eye protection when drilling or cutting. Flying debris during drilling can cause eye injury resulting in permanent blindness.

⚠ WARNING

AVOID LONG-TERM INJURY!

Make sure to use lifting devices rated for a minimum of 10,000 lbs (4536 kg). Using lesser rated equipment could result in serious injury or death.

NOTE

It will be necessary to raise the container above the floor level to gain access to the seals on the bottom door edge.

1. Ensure that both doors of the container are closed and latched.
2. Using a suitable cutting tool to cut through the hinge pins on the door that will be replaced. Cut the pin above and below the door hinge as show in **Figure 5.7**.

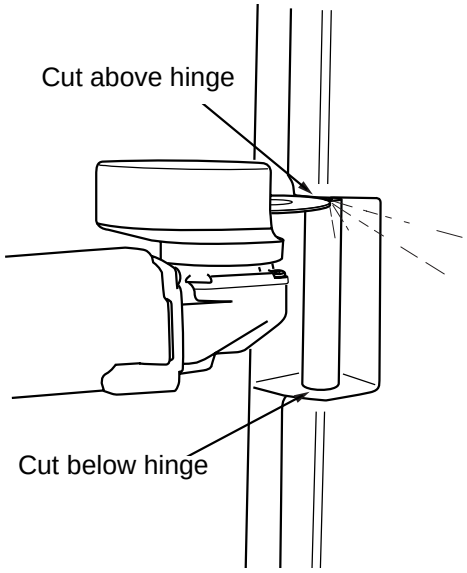


Figure 5.7 Door Removal, View 1

⚠ CAUTION

Container doors are heavy. Use two personnel and proper lifting techniques when lifting the doors.

3. Unlatch the door by opening the locking bar assembly and remove the door. Refer to **Figure 5.8**.

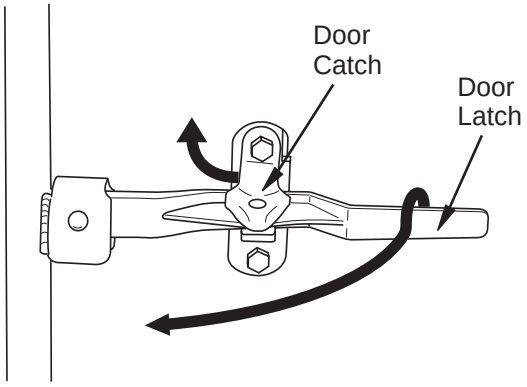


Figure 5.8 Door Removal, View 2

4. Heat the hinge butts using an oxyacetylene torch as shown in **Figure 5.9**.

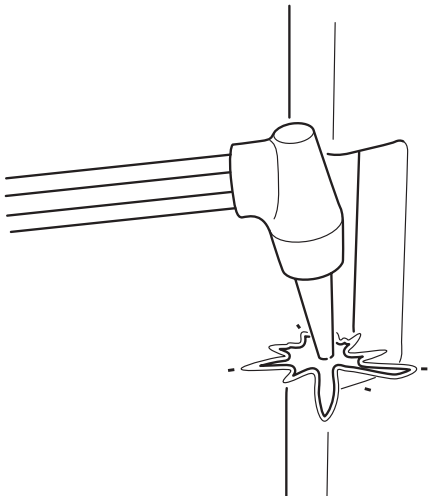


Figure 5.9 Door Removal, View 3

5. Drive the remaining fragments of the hinge pins out using a hammer and punch as shown in **Figure 5.10**.

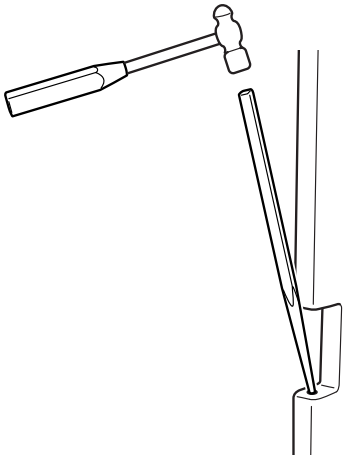


Figure 5.10 Door Removal, View 4

6. Clean, prime and paint the individual door hinges as necessary. *Refer to “Spot Painting” on page 4-21.*

5.8 DOOR INSTALLATION

⚠ CAUTION

Container doors are heavy. Use two personnel and proper lifting techniques when lifting the doors.

1. Using the appropriate support (manpower or an MHE) place the new door into the door opening.
2. Make sure that new door is properly seated within the opening and that the door hinges are properly aligned with container hinge butts. Secure the door in place by closing the locking bar assemblies.
3. Insert the washers between the bottom of the door hinges and the container hinge butt. Refer to **Figure 5.11**.

NOTE

It may be necessary to unlock and lift the door to insert the bottom washer.

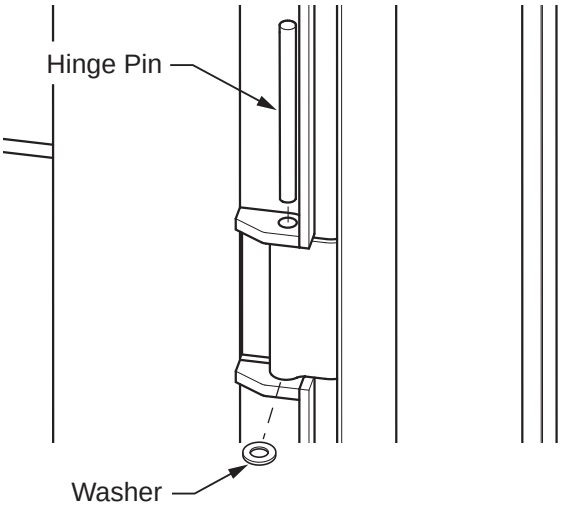


Figure 5.11 Door Installation, View 1

4. Insert the new hinge pins.
5. Weld the top of each hinge pin head to ensure that hinge pin is permanently fixed to the hinge butts as shown in **Figure 5.12**. *Refer to "Welding and Repair Procedures" on page 5-12.*

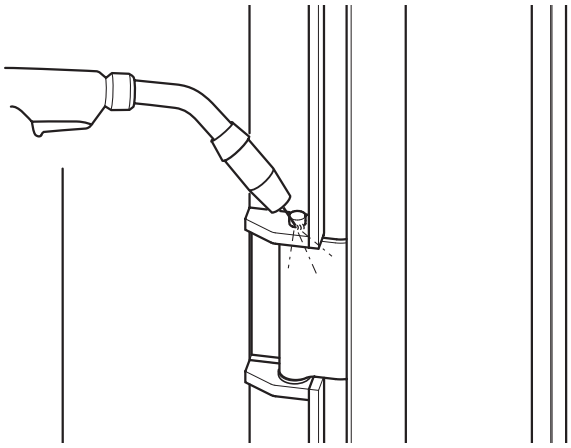


Figure 5.12 Door Installation, View 2

6. Clean all weld and adjacent areas thoroughly and apply spot paint as necessary. *Refer to “Spot Painting Procedures” on page 4-19.*
7. If necessary, transfer the Data plate(s) from the damaged door to the new door. *Refer to “Data Plate Installation” on page 4-20.*

SECTION III: WELDING AND REPAIR PROCEDURES

5.9 GENERAL

⚠ WARNING

AVOID BLINDNESS OR BURNS!

Use eye protection when grinding. Use welding goggles and gloves when welding. Sparks, flashes and flying debris during welding or grinding can cause eye injury resulting in permanent blindness.

NOTE

Only use Corten steel when welding the container.

5.9.1. Minor dents and marks on shipping and storage containers are to be expected. Weld repairs are only necessary when one of the following conditions exist:

1. The container is pierced or punctured allowing contents to be exposed to the elements.
2. There are cracked welds on the container.

5.9.2. Weld Wire:

1. The recommended weld wire used to make repairs on the container is American Welding Society Classification 70S-6, specification A5.18, wire diameter 0.030".
2. All weld wire must be stored in an enclosed area when not in use.
3. Weld wire must be checked for nicks, burrs, pits and rust prior to use.

5.9.3. Shielding Gas:

1. The recommended shielding gas used with AWS 70S-6 is 75% Argon and 25% Carbon Dioxide.
2. Recommended shielding gas used with AWS 5356 is 100% Argon.

5.9.4. Welding Procedure:

1. When making weld repairs in the vertical position, it is recommended that the direction of travel while welding is the vertical down position.
2. Remove all paint, corrosion and other foreign material in the repair area.

5.10 ACCEPTABLE PATCHING

5.10.1. Repairs (patches) in the wall, roof, or door panels are permissible and may either be an overlapping lap-welded type, an overlapping buck-riveted type, or an inserted butt-welded type of repair. Lap-welded patches should overlap existing panel by at least 1/2" (13mm). Riveted patches should overlap existing panel by at least 2" (5 0mm). Butt-welded patches should be flush fitting. All repairs on corrugated sections must be neatly made, have a similar cross sectional profile, and not affect the structural integrity of the container. All repairs, regardless of size, must be permanent and must seal against the ingress of water. Rivets or other special fasteners used for affixing patches to panels, should be a closed or blind mandril design. The use of hollow core pop rivets for repair of steel containers must be limited to doors of MILSPEC VANs and must be caulked to prevent water seepage. There is no limit to the number of patches on a wall, roof, or door panel, provided the structural integrity of the container is not impaired. Patches must not overlap other patches.

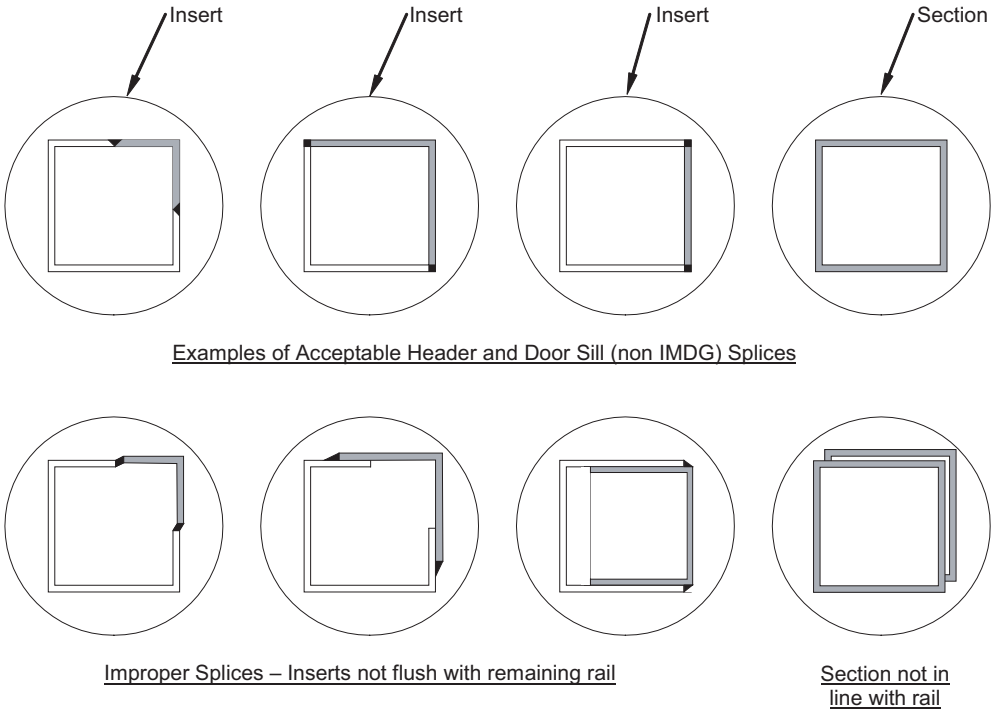
NOTE

Small holes and tears in steel walls may be repaired with bead welding.

5.11 RAIL AND POST SPLICING

5.11.1. For the purposes of these criteria, a splice is any repair of a primary structural member that replaces material without complete replacement of the member. Areas repaired by straightening and/or bead welding are not considered splices. Gussets, backup plates or other reinforcement (protector) plates are not considered splices. An acceptable splice on a steel rail is butt-welded, flush-fitting and restores the original size and cross-sectional profile of the repaired component. On an aluminum rail, the splice may overlap the damaged area (overlapped or lapped splice) and will be riveted. An acceptable splice is a minimum of 6" (150mm) long. Both inserts and section (full profile) are acceptable types of splices, but not in all cases. Read the inspection criteria of the component for specific splicing allowances. If a splice would end within 12" (300mm) of another weld, such as at the juncture with the corner fitting, it must be extended to that weld. Backup plates installed on the backside of a splice are permissible if the backup plate extends a minimum of 6" (150mm) beyond each end of the splice.

Refer to **Figure 5.13** for examples of splice limitations in door and header sills and **Figure 5.14** for typical splices in rails.


Insert
Insert
Insert
Section
Examples of Acceptable Header and Door Sill (non IMDG) Splices
Improper Splices – Inserts not flush with remaining rail
Section not in line with rail

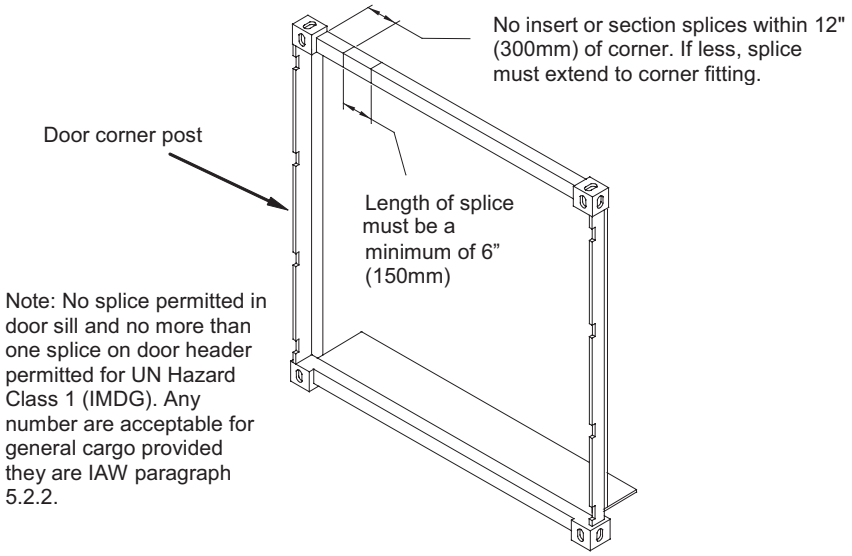

No insert or section splices within 12" (300mm) of corner. If less, splice must extend to corner fitting.
Door corner post
Length of splice must be a minimum of 6" (150mm)
Note: No splice permitted in door sill and no more than one splice on door header permitted for UN Hazard Class 1 (IMDG). Any number are acceptable for general cargo provided they are IAW paragraph 5.2.2.

Figure 5.13 Door Header and Sill Splice Limitations

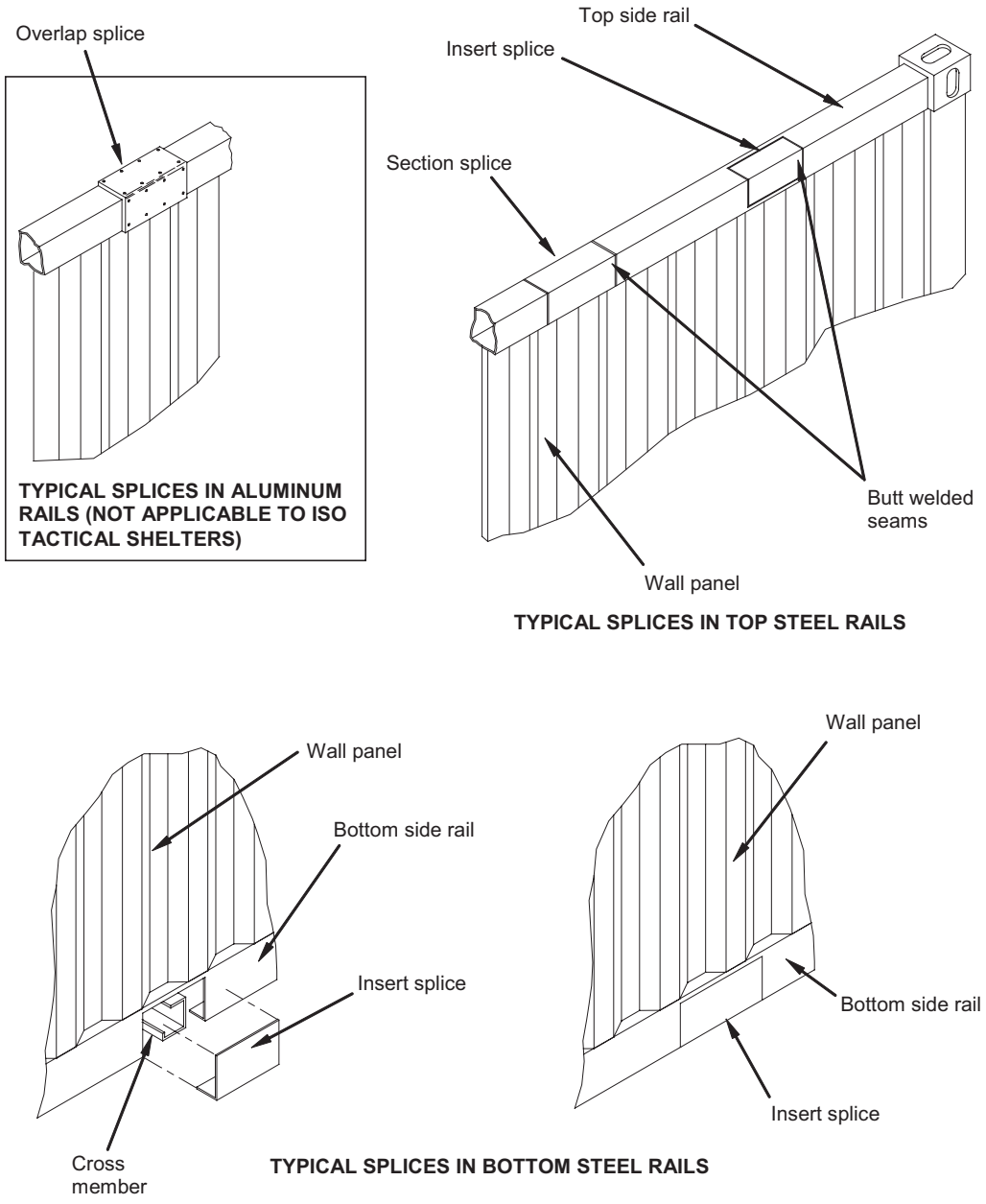


Figure 5.14 Typical Splices in Rails

5.12 Side and End Panel Repair

5.12.1. Container side and end panels can be repaired using patches. An acceptable patch is of permanent design, of similar material and configuration, and weatherproof. “Patch” is a generic repair term, which for the purposes of this inspection criteria, is reserved exclusively for repairs on non-structural components such as a wall, roof, or door panel. A patch may be either an insert or overlapping type of repair.

Refer to **Figure 5.15** for examples of typical patches and **Figure 5.16** for examples of acceptable wall patches.

5.12.2. Types of Side and End Panel Patches:

1. **Inserts.** A specific type of repair in which replacement material is fitted flush with the original component and only a partial profile of the component's cross section is replaced.
2. **Web.** The vertical portion between the upper and lower flanges of a cross member or rail.
3. **Flange.** The wide portion at the top or bottom of a cross member or rail. A flange usually projects at a right angle to the web.
4. **Overlap (Lapped).** A specific type of repair in which replacement material is extended over a portion of the undamaged area of the original component and changes the profile of the component's cross section.

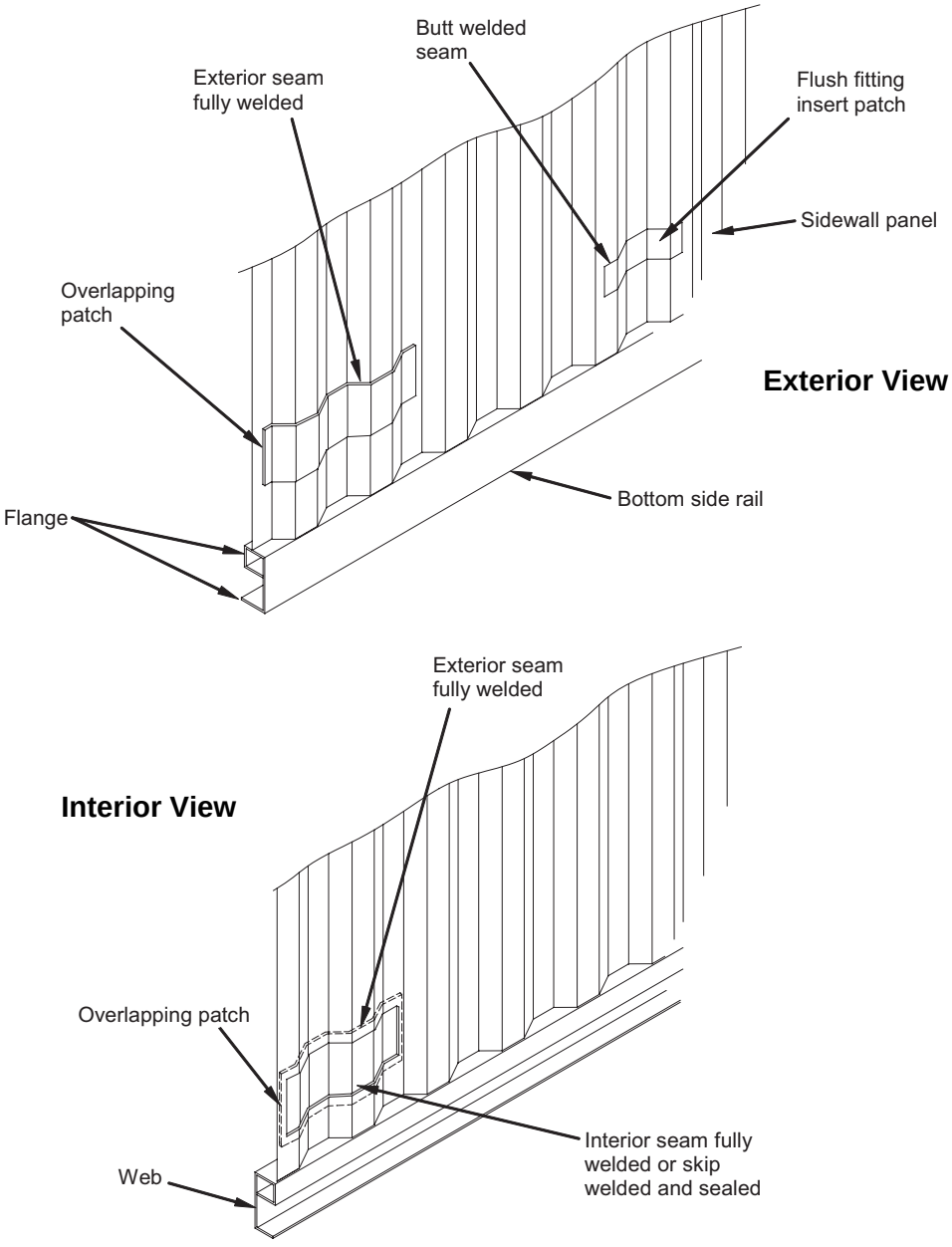


Figure 5.15 Typical Welded Patches on Wall Panels

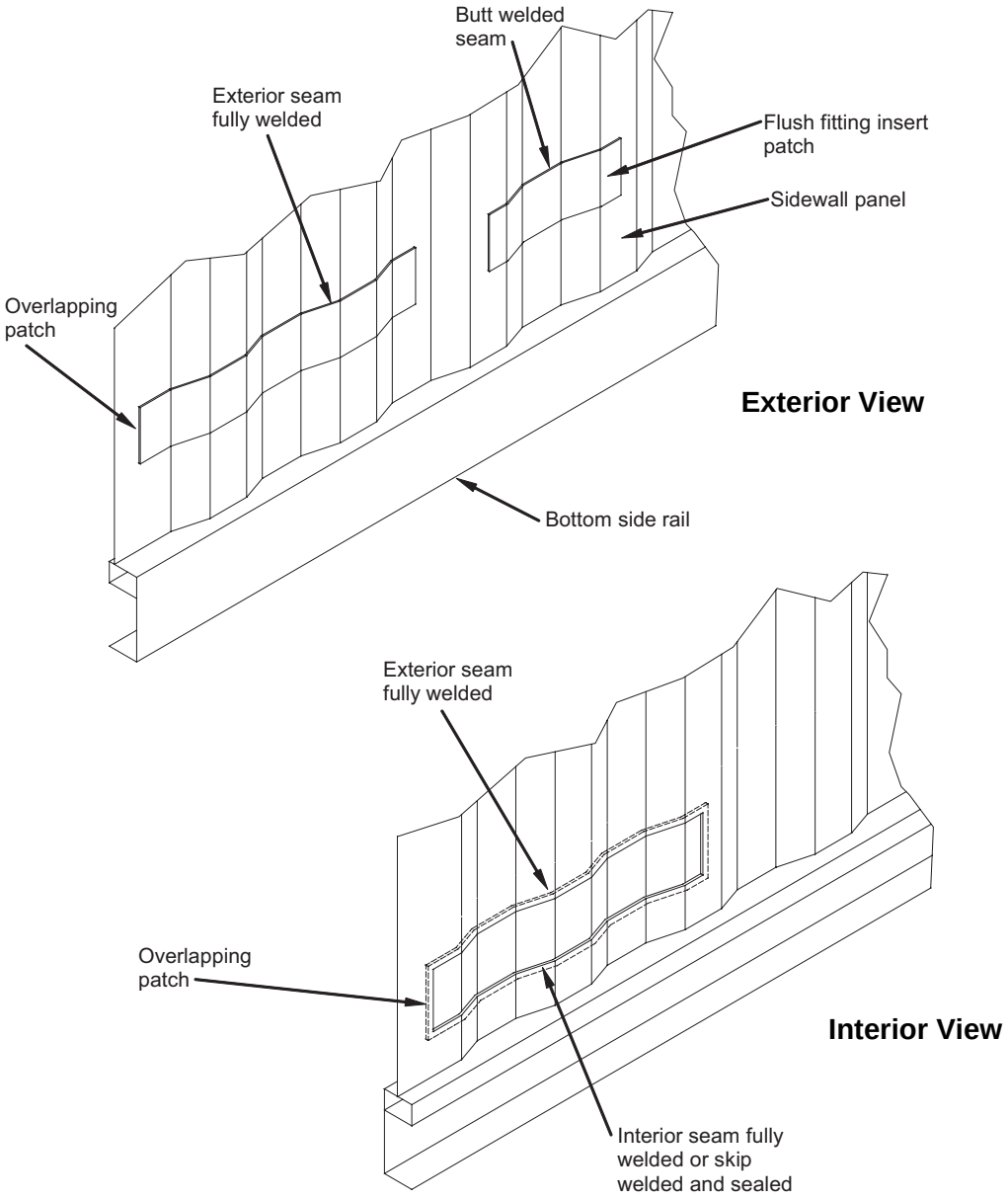


Figure 5.16 Acceptable Wall Patches

CHAPTER 6: ILLUSTRATED REPAIR PARTS LIST

SECTION I : INTRODUCTION

6.1 GENERAL

6.1.1. The Illustrated Repair Parts List contains breakdowns for all groups, assemblies and sub-assemblies that can be disassembled, reassembled and replaced.

6.2 EXPLANATION AND USE OF COLUMNS

6.2.1. ITEM NO. – The number used to identify each item called out in the illustration.

6.2.2. CAGE NO. – The Commercial and Government Entity Code is a five-digit code listed in SC708-42, which is used to identify the manufacturer, distributor or Government agency whose part number is used to identify the part.

6.2.3. PART NUMBER – The first part number listed indicates the primary control number, which controls the design and characteristics of the item by means of its engineering drawing, specifications or standard. When additional part numbers are listed, this indicates that the first part number is a Specification Control drawing and that the part is available from the company whose CAGE is listed opposite the number.

Parts painted with CARC or non-CARC paint will contain an extra letter in the part number sequence. This letter will determine whether the paint is CARC or non-CARC:

C = CARC
S = non-CARC

Example: SB812**C**G

Parts that can be ordered in either Olive Drab Green or Desert Tan will contain an extra letter at the end of the part number sequence. This letter will determine the paint color:

G = OD Green
T = Desert Tan

Example: SB812C**G**

6.2.4. DESCRIPTION – The item name and, if required, a minimum description to identify the item.

6.2.5. U/M (Unit of Measure) – Indicates the standard of the basic quantity of the listed item as used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea., in, pr). When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

6.2.6. QTY (Quantity) – Indicates the quantity of the item used in the breakout shown on the illustration figure. A 'V' appearing in this column in lieu of a quantity indicates that no specific quantity is applicable (e.g., shims, spacers).

NOTE

Replacement parts must be ordered by part number.

SECTION II: REPAIR PARTS LIST WITH ILLUSTRATED PARTS BREAKDOWN

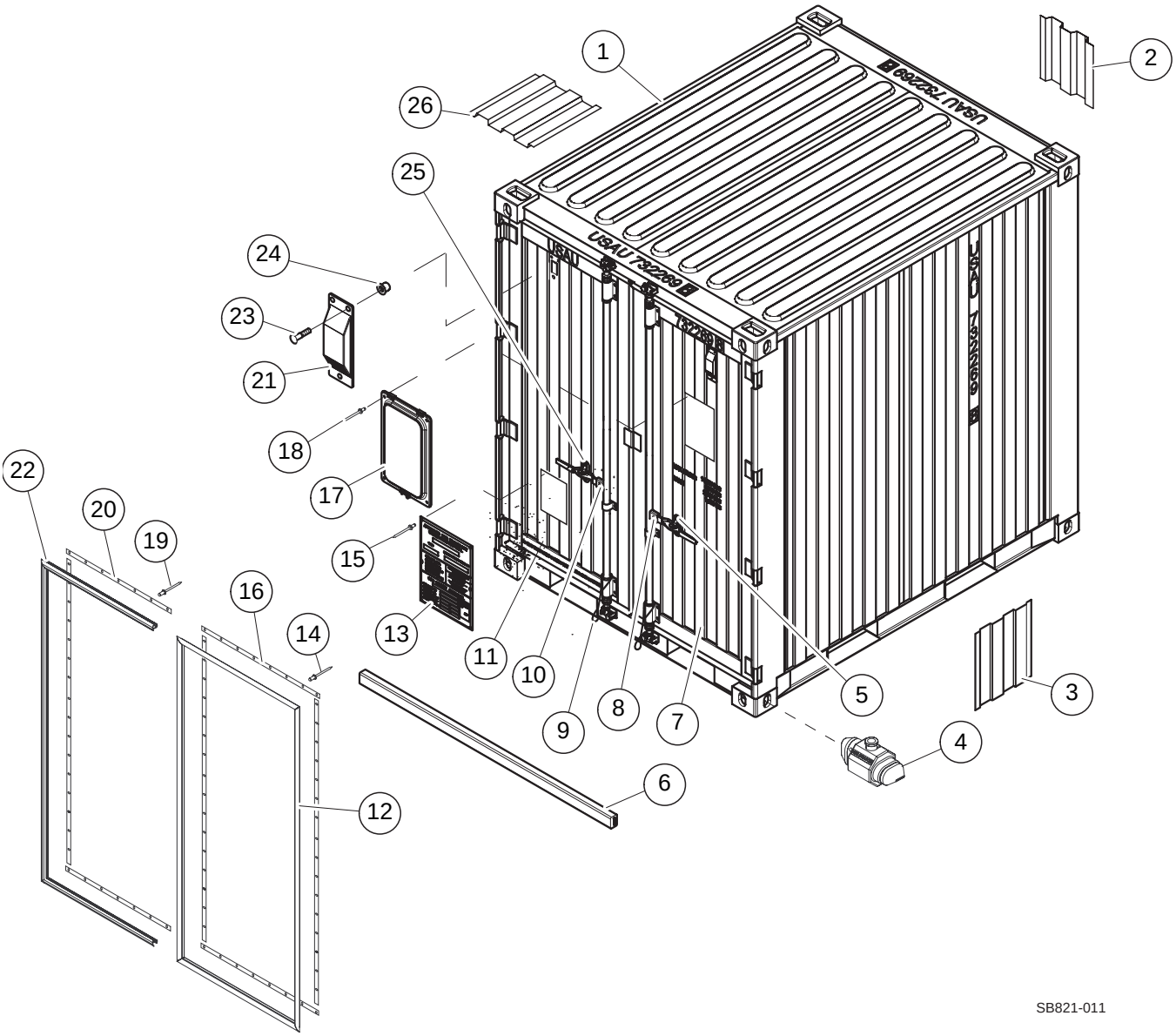


Figure 6.1 Container Detail (Type 1)

Table 6.1 TRICON Container (Type 1)

Item No.	Cage	Part No.	Description	Qty.
1.	OFXA9	SB821.0CG	TRICON Container Type 1 (CARC) (OD Green)	1
	OFXA9	SB821.0CT	TRICON Container Type 1 (CARC) (Desert Tan)	1
	OFXA9	SB821.0SG	TRICON Container Type 1 (Non-CARC) (OD Green)	1
	OFXA9	SB821.0ST	TRICON Container Type 1 (Non-CARC) (Desert Tan)	1
2.	OFXA9	90-0000002.00	Front Wall Panel (Bulk Repair) (2' x 2')	1
3.	OFXA9	90-0000001.00	Side Wall Panel (Bulk Repair) (2' x 2')	1
4.	OFXA9	SB2341	Connecting Coupler	3
5.	OFXA9	30-0000051.00	Hasp Assembly (Primary)	1
6.	OFXA9	SB2150	Restraint Bar	15
7.	OFXA9	60-001004.00CG	Door R.H. Complete (CARC) (OD Green)	1
	OFXA9	60-001004.00CT	Door R.H. Complete (CARC) (Desert Tan)	1
	OFXA9	60-001004.00SG	Door R.H. Complete (Non-CARC) (OD Green)	1
	OFXA9	60-001004.00ST	Door R.H. Complete (Non-CARC) (Desert Tan)	1
8.	OFXA9	60-000003.00CG	Lock Bar Assembly R.H. (Primary) (CARC) (OD Green)	1
	OFXA9	60-000003.00CT	Lock Bar Assembly R.H. (Primary) (CARC) (Desert Tan)	1
	OFXA9	60-000003.00SG	Lock Bar Assy R.H. (Primary) (Non-CARC) (OD Green)	1
	OFXA9	60-000003.00ST	Lock Bar Assy R.H. (Primary) (Non-CARC) (Desert Tan)	1
9.	OFXA9	30-0000001.01	Rope (ø6mm x 600mm) Nylon	2
10.	OFXA9	60-000001.00CG	Lock Bar Assembly L.H. (Primary) (CARC) (OD Green)	1
	OFXA9	60-000001.00CT	Lock Bar Assembly L.H. (Primary) (CARC) (Desert Tan)	1
	OFXA9	60-000001.00SG	Lock Bar Assy L.H. (Primary) (Non-CARC) (OD Green)	1
	OFXA9	60-000001.00ST	Lock Bar Assy L.H. (Primary) (Non-CARC) (Desert Tan)	1
11.	OFXA9	60-001003.00CG	Door L.H. Complete (CARC) (OD Green)	1
	OFXA9	60-001003.00CT	Door L.H. Complete (CARC) (Desert Tan)	1
	OFXA9	60-001003.00SG	Door L.H. Complete (Non-CARC) (OD Green)	1
	OFXA9	60-001003.00ST	Door L.H. Complete (Non-CARC) (Desert Tan)	1
12.	OFXA9	60-000006.00	R.H. Door Gasket	1
13.	OFXA9	MK-0000001.00	Data Plate, SB821.0	6
14.	OFXA9	HW-0000012.00	Rivet, Blind	43
15.	OFXA9	HW-0000014.00	Rivet, Blind	6
16.	OFXA9	FA-0000002.00	R.H. Door Gasket Retainer Strip	1
17.	OFXA9	PP-0000002.00	Manifest Box	2
18.	OFXA9	HW-0000030.00	Manifest Box Rivets (ø3/16" x .940")	8
19.	OFXA9	HW-0000012.00	L.H. Door Gasket Rivets (Stainless Steel)	30
20.	OFXA9	FA-0000001.00	L.H. Door Gasket Retainer Strip	1
21.	OFXA9	PP-0000001.00	Container Vent	2
22.	OFXA9	60-000005.00	L.H. Door Gasket	1
23.	OFXA9	HW-0000015.00	Huck Bolts (ø6mm 4-8mm Grip Range)	6
24.	OFXA9	HW-0000017.00	Huck Nuts (ø6mm) (308 S.S.)	6
25.	OFXA9	30-0000050.00	Hasp Assembly (Non-Primary)	1
26.	OFXA9	90-0000003.00	Roof Panel (Bulk Repair) (2' x 2')	1

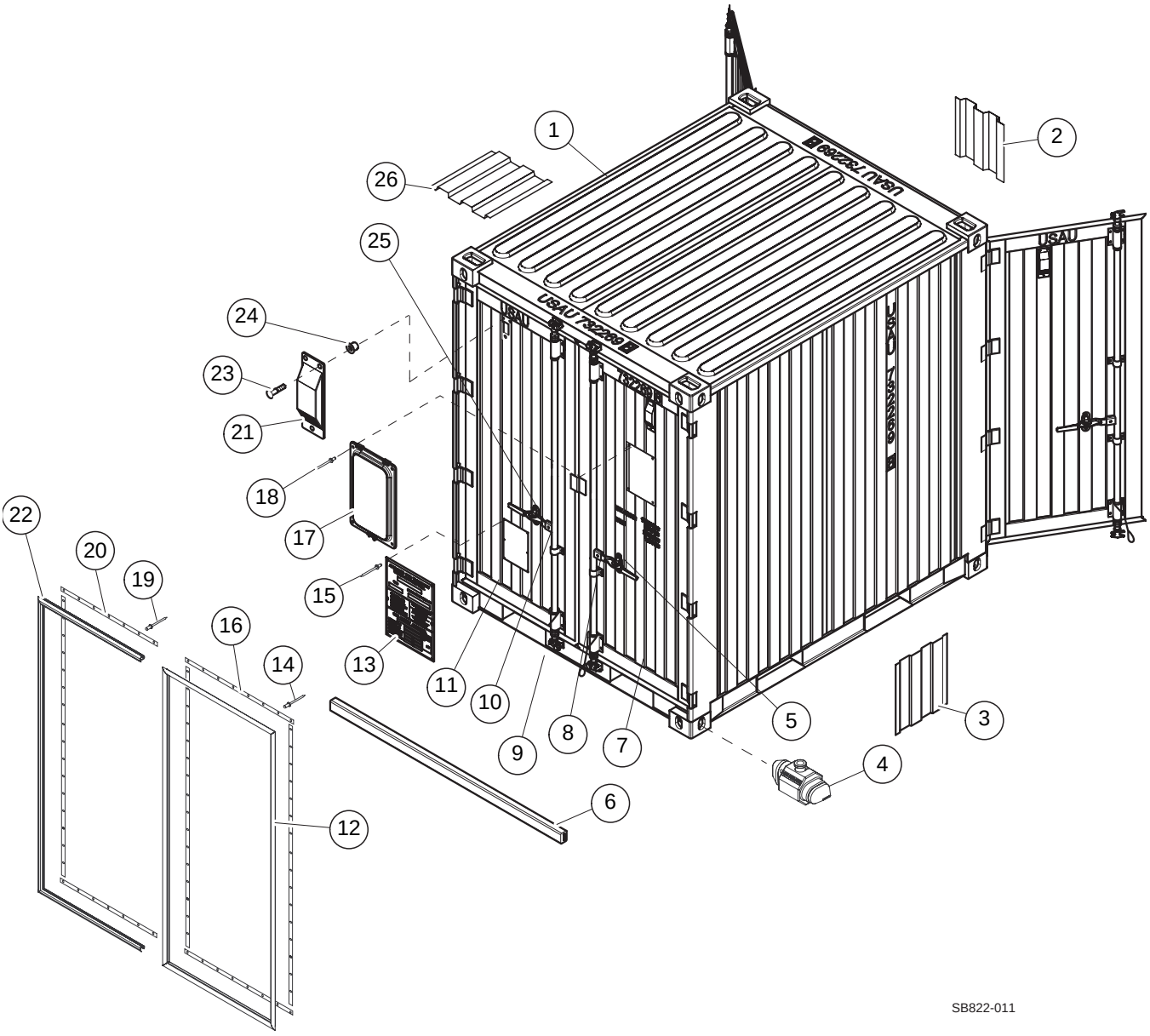


Figure 6.2 Container Detail (Type 2)

Table 6.2 TRICON Container (Type 2)

Item No.	Cage	Part No.	Description	Qty.
1.	OFXA9	SB822.0CG	TRICON Container Type 2 (CARC) (OD Green)	1
	OFXA9	SB822.0CT	TRICON Container Type 2 (CARC) (Desert Tan)	1
	OFXA9	SB822.0SG	TRICON Container Type 2 (Non-CARC) (OD Green)	1
	OFXA9	SB822.0ST	TRICON Container Type 2 (Non-CARC) (Desert Tan)	1
2.	OFXA9	90-0000002.00	Front Wall Panel (Bulk Repair) (2' x 2')	1
3.	OFXA9	90-0000001.00	Side Wall Panel (Bulk Repair) (2' x 2')	1
4.	OFXA9	SB2341	Connecting Coupler	3
5.	OFXA9	30-0000051.00	Hasp Assembly (Primary)	2
6.	OFXA9	SB2150	Restraint Bar	15
7.	OFXA9	60-001004.00CG	Door R.H. Complete (CARC) (OD Green)	2
	OFXA9	60-001004.00CT	Door R.H. Complete (CARC) (Desert Tan)	2
	OFXA9	60-001004.00SG	Door R.H. Complete (Non-CARC) (OD Green)	2
	OFXA9	60-001004.00ST	Door R.H. Complete (Non-CARC) (Desert Tan)	2
8.	OFXA9	60-000003.00CG	Lock Bar Assembly R.H. (Primary) (CARC) (OD Green)	2
	OFXA9	60-000003.00CT	Lock Bar Assembly R.H. (Primary) (CARC) (Desert Tan)	2
	OFXA9	60-000003.00SG	Lock Bar Assy R.H. (Primary) (Non-CARC) (OD Green)	2
	OFXA9	60-000003.00ST	Lock Bar Assy R.H. (Primary) (Non-CARC) (Desert Tan)	2
9.	OFXA9	60-000006.00	R.H. Door Gasket	2
10.	OFXA9	30-0000001.01	Rope (ø6mm x 600mm) Nylon	4
11.	OFXA9	60-000001.00CG	Lock Bar Assembly L.H. (Primary) (CARC) (OD Green)	2
	OFXA9	60-000001.00CT	Lock Bar Assembly L.H. (Primary) (CARC) (Desert Tan)	2
	OFXA9	60-000001.00SG	Lock Bar Assy L.H. (Primary) (Non-CARC) (OD Green)	2
	OFXA9	60-000001.00ST	Lock Bar Assy L.H. (Primary) (Non-CARC) (Desert Tan)	2
12.	OFXA9	60-001003.00CG	Door L.H. Complete (CARC) (OD Green)	2
	OFXA9	60-001003.00CT	Door L.H. Complete (CARC) (Desert Tan)	2
	OFXA9	60-001003.00SG	Door L.H. Complete (Non-CARC) (OD Green)	2
	OFXA9	60-001003.00ST	Door L.H. Complete (Non-CARC) (Desert Tan)	2
13.	OFXA9	MK-0000001.00	Data Plate, SB822.0	1
14.	OFXA9	HW-0000012.00	Rivet, Blind	86
15.	OFXA9	HW-0000014.00	Rivet, Blind	6
16.	OFXA9	FA-0000002.00	R.H. Door Gasket Retainer Strip	2
17.	OFXA9	PP-0000002.00	Manifest Box	2
18.	OFXA9	HW-0000012.00	Rivet, Blind	8
19.	OFXA9	HW-0000030.00	Rivet, Blind	60
20.	OFXA9	FA-0000001.00	L.H. Door Gasket Retainer Strip	2
21.	OFXA9	PP-0000001.00	Container Vent	2
22.	OFXA9	60-000005.00	L.H. Door Gasket	2
23.	OFXA9	HW-0000015.00	Huck Bolts (ø6mm 4-8mm Grip Range)	6
24.	OFXA9	HW-0000017.00	Huck Nuts (ø6mm) (308 S.S.)	6
25.	OFXA9	30-0000050.00	Hasp Assembly (Non-Primary)	2
26.	OFXA9	90-0000003.00	Roof Panel (Bulk Repair) (2' x 2')	1

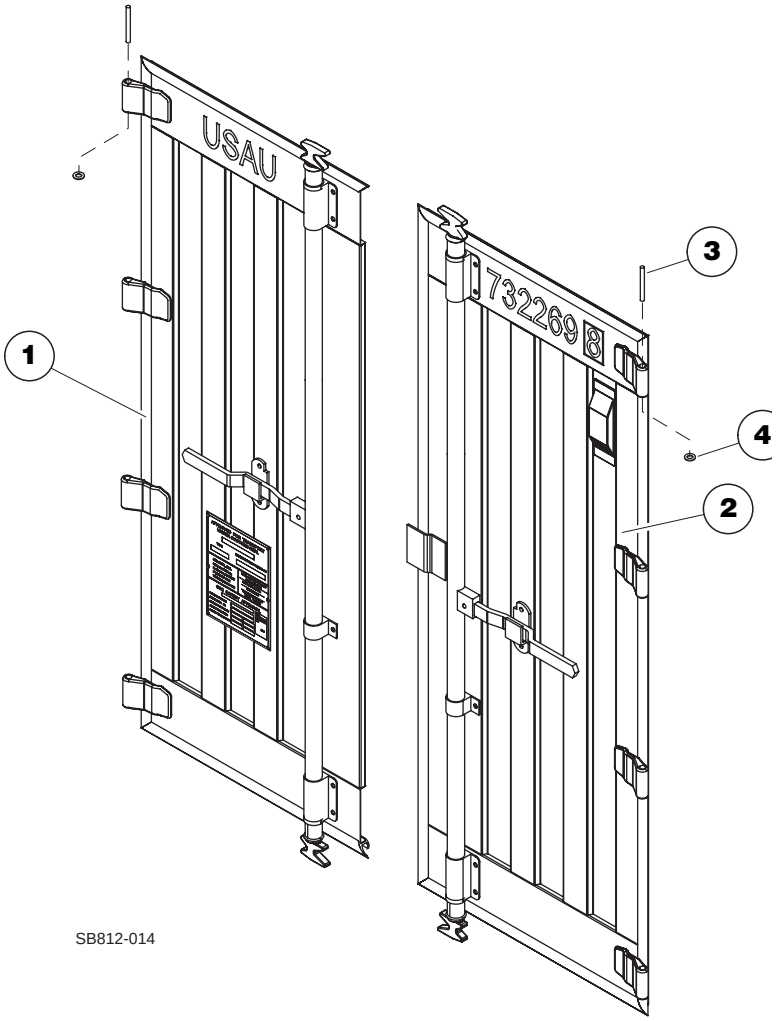


Figure 6.3 Complete Door Assemblies

Table 6.3 Complete Door Assemblies

Item No.	Cage	Part No.	Description	Qty.
1.	OFXA9	60-001003.00CG	Door L.H. Complete (CARC) (OD Green)	1
	OFXA9	60-001003.00CT	Door L.H. Complete (CARC) (Desert Tan)	1
	OFXA9	60-001003.00SG	Door L.H. Complete (Non-CARC) (OD Green)	1
	OFXA9	60-001003.00ST	Door L.H. Complete (Non-CARC) (Desert Tan)	1
2.	OFXA9	60-001004.00CG	Door R.H. Complete (CARC) (OD Green)	1
	OFXA9	60-001004.00CT	Door R.H. Complete (CARC) (Desert Tan)	1
	OFXA9	60-001004.00SG	Door R.H. Complete (Non-CARC) (OD Green)	1
	OFXA9	60-001004.00ST	Door R.H. Complete (Non-CARC) (Desert Tan)	1
3.	OFXA9		Hinge Pin	4 ea.
4.	OFXA9		Washer	4 ea.

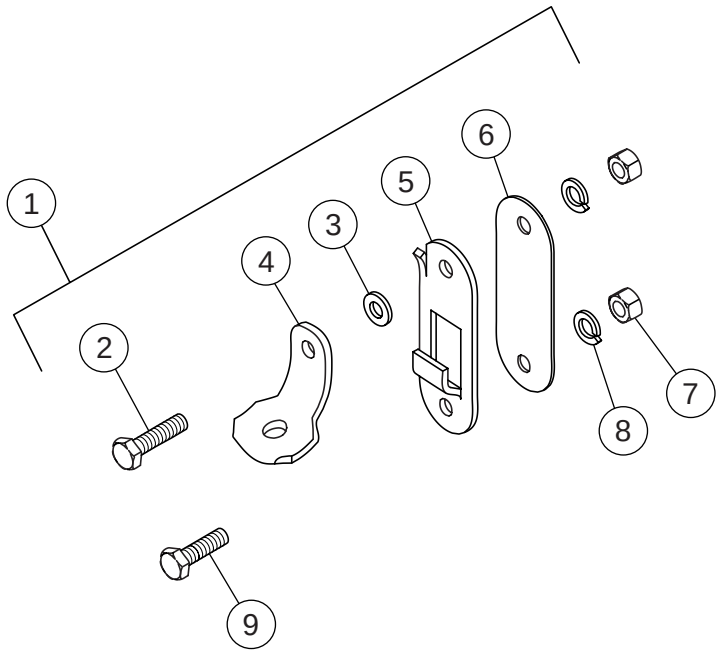


Figure 6.4 Door Hasp Assembly (Non-Primary Shown)

Table 6.4 Door Hasp Assemblies

Item No.	Cage	Part No.	Description	Qty.
1.	OFXA9	30-0000050.00	Hasp Assembly (Non-Primary)	1
	OFXA9	* 30-0000051.00	Hasp Assembly (Primary)	N/A
2.	OFXA9	HW-0000100.25	Hex Head Bolt (1 x 3/8 x 16")	1
	OFXA9	* HW-0000501.00	Bolt, Carriage (1-1/4 x 3/8 x 16") (Primary Only)	1
3.	OFXA9	HW-0000301.00	Plain Washer (1/2")	1
4.	OFXA9	DG-0000007.00	Catch	1
5.	OFXA9	DG-0000008.00	Retainer Plate	1
6.	OFXA9	DG-0000011.00	Retainer Plate Gasket	1
7.	OFXA9	HW-0000010.00	Nut (3/8 x 16")	2
8.	OFXA9	HW-0000400.00	Spring Washer	2
9.	OFXA9	HW-0000100.25	Hex Head Bolt (1 x 3/8 x 16")	1

* Item not shown in illustration

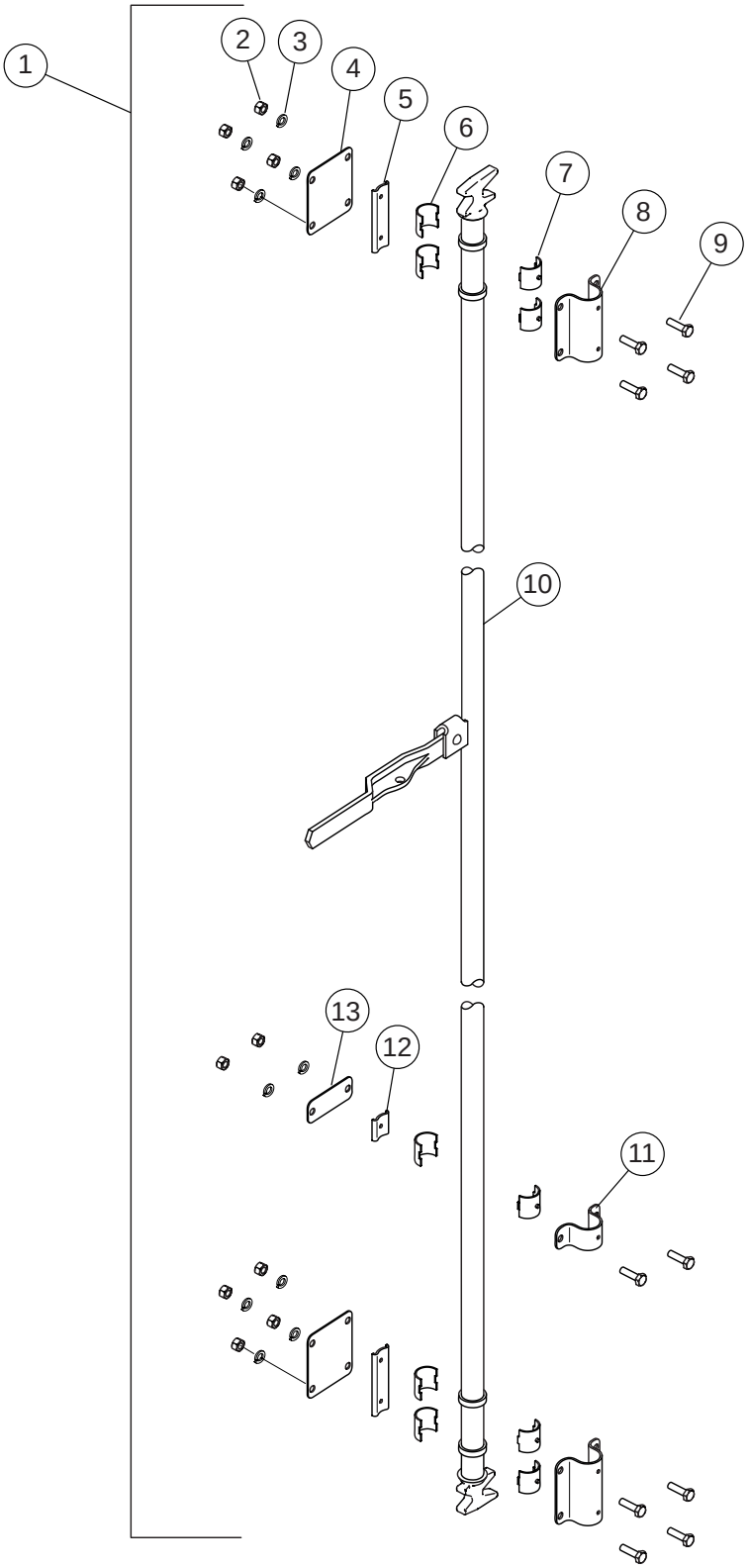


Figure 6.5 Left-hand Lock Bar Assembly

Table 6.5 Left-hand Lock Bar Assembly Kit

Item No.	Cage	Part No.	Description	Qty.
1.	OFXA9	60-000001.00CG	Lock Bar Assembly L.H. (Primary) (CARC) (OD Green)	1
	OFXA9	60-000001.00CT	Lock Bar Assembly L.H. (Primary) (CARC) (Desert Tan)	1
	OFXA9	60-000001.00SG	Lock Bar Assy L.H. (Primary) (Non-CARC) (OD Green)	1
	OFXA9	60-000001.00ST	Lock Bar Assy L.H. (Primary) (Non-CARC) (Desert Tan)	1
2.	OFXA9	HW-0000010.00	M10 Nut	10
3.	OFXA9	HW-0000400.00	Spring Washer	10
4.	OFXA9	DG-0000009.00	Bearing Bracket Gasket Large	2
5.	OFXA9	DG-0000002.00	Bearing Bracket Inner Large	2
6.	OFXA9	DG-0000004.00	Lower Short Split Bushing	5
7.	OFXA9	DG-0000003.00	Upper Short Split Bushing	5
8.	OFXA9	DG-0000001.00	Bearing Bracket Outer Large	2
9.	OFXA9	HW-0000100.25	M10 x 25mm Hex Head Bolt	10
10.	OFXA9	30-0000002.00	Lock Bar Weldment	1
11.	OFXA9	DG-0000005.00	Bearing Bracket Outer Small	1
12.	OFXA9	DG-0000006.00	Bearing Bracket Inner Small	1
13.	OFXA9	DG-0000010.00	Bearing Bracket Gasket Small	1

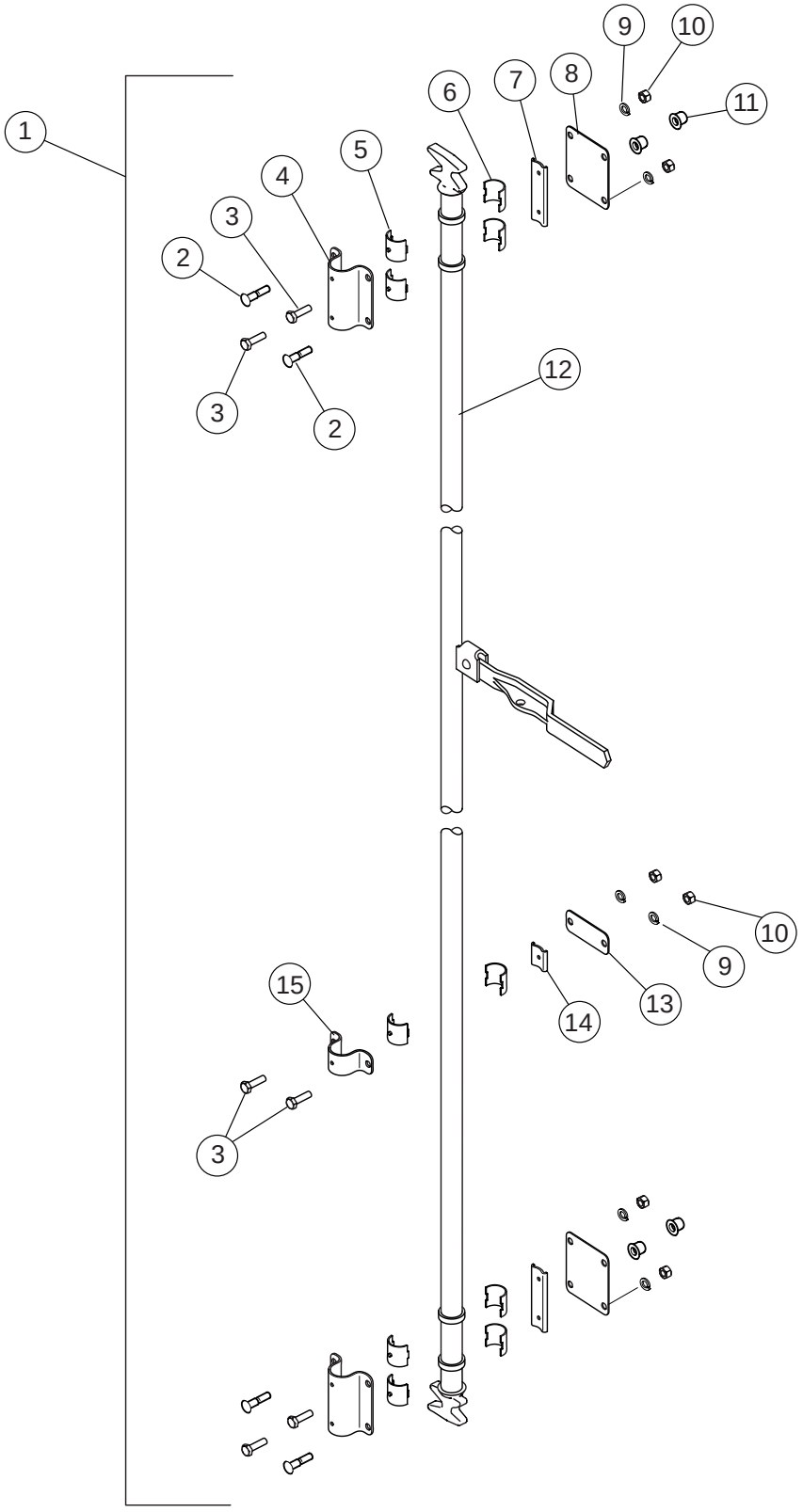


Figure 6.6 Right-hand Lock Bar Assembly

Table 6.6 Right-hand Lock Bar Assembly Kit

Item No.	Cage	Part No.	Description	Qty.
1.	OFXA9	60-000003.00CG	Lock Bar Assembly R.H. (Primary) (CARC) (OD Green)	1
	OFXA9	60-000003.00CT	Lock Bar Assembly R.H. (Primary) (CARC) (Desert Tan)	1
	OFXA9	60-000003.00SG	Lock Bar Assy R.H. (Primary) (Non-CARC) (OD Green)	1
	OFXA9	60-000003.00ST	Lock Bar Assy R.H. (Primary) (Non-CARC) (Desert Tan)	1
2.	OFXA9	HW-0000018.00	Huck Bolt 6LB-R12	4
3.	OFXA9	HW-0000100.25	M10 x 25mm Hex Head Bolt	6
4.	OFXA9	DG-0000001.00	Bearing Bracket Outer Large	2
5.	OFXA9	DG-0000003.00	Upper Short Split Bushing	5
6.	OFXA9	DG-0000004.00	Lower Short Split Bushing	5
7.	OFXA9	DG-0000002.00	Bearing Bracket Inner Large	2
8.	OFXA9	DG-0000009.00	Bearing Bracket Gasket Large	2
9.	OFXA9	HW-0000400.00	Spring Washer	6
10.	OFXA9	HW-0000010.00	M10 Nut	6
11.	OFXA9	HW-0000019.00	Huck Nut 2LC-R12	4
12.	OFXA9	30-0000003.00	Lock Bar Weldment	1
13.	OFXA9	DG-0000010.00	Bearing Bracket Gasket Small	1
14.	OFXA9	DG-0000006.00	Bearing Bracket Inner Small	1
15.	OFXA9	DG-0000005.00	Bearing Bracket Outer Small	1

SECTION III: EXPENDABLE / DURABLE SUPPLIES AND REQUIREMENTS

Table 6.7 Expendable / Durable Items

Item No.	Cage	Part No.	Description	Qty.
1.	OFXA9	90-0000011.00	Undercoating, Black	N/A
2.	OFXA9	90-0000010.00G	CARC Top Coat Paint (OD Green)	N/A
	OFXA9	90-0000010.00T	CARC Top Coat Paint (Desert Tan)	N/A
3.	OFXA9	90-0000006.00G	Non-CARC Top Coat Paint (OD Green)	N/A
	OFXA9	90-0000006.00T	Non-CARC Top Coat Paint (Desert Tan)	N/A
4.	OFXA9	90-0000005.00	Second Primer Paint	N/A
5.	OFXA9	90-0000004.00	First Primer Paint	N/A

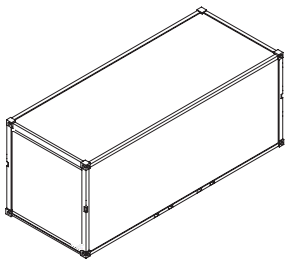
APPENDIX A: INSPECTION CHECKLIST

SECTION I : ISO CONTAINER INSPECTION CHECKLIST

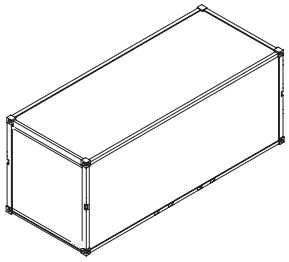
ISO Number:		Date of Inspection:	
Type of Container: **END-OPENING VAN**	(Circle One) Pass Fail	(Circle One) IMDG & non IMDG non IMDG ONLY	New Decal Installed New Expiration Date Month Year
Installation/Activity:		Inspected By:	

Exterior

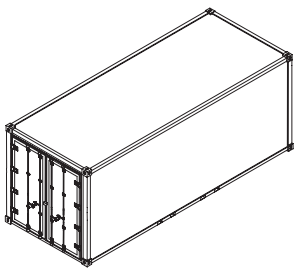
Doors			Roadside			Front			Curbside		
Component	Defects		Component	Defects		Component	Defects		Component	Defects	
	Minor	CSC		Minor	CSC		Minor	CSC		Minor	CSC
CSC PLATE			ISO NUMBER			ISO NUMBER			ISO NUMBER		
STENCILS			CORNER FITTINGS			CORNER FITTINGS			CORNER FITTINGS		
ISO NUMBERS			CORNER POSTS			CORNER POSTS			CORNER POSTS		
CORNER POSTS			TOP SIDE RAIL			TOP END RAIL			TOP SIDE RAIL		
CORNER FITTINGS			BOTTOM SIDE RAIL			BOTTOM END RAIL			BOTTOM SIDE RAIL		
DOOR HEADER			FORKLIFT POCKETS			PANEL			FORKLIFT POCKETS		
DOOR SILL			PANEL			PLACARD HOLDER			PANEL		
DOOR PANELS			PLACARD HOLDER						PLACARD HOLDER		
DOOR LINING											
DOOR GASKETS											
RODS											
ROD RETAINERS											
CAMS											
CAM RETAINERS											
J-BARS											
RAIN GUTTERING											
PLACARD HOLDER											



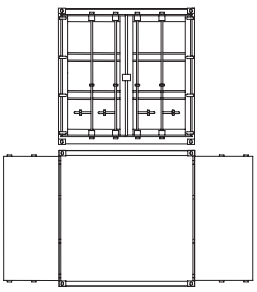
(CIRCLE DEFECTS)



(CIRCLE DEFECTS)



(CIRCLE DEFECTS)



(CIRCLE DEFECTS)

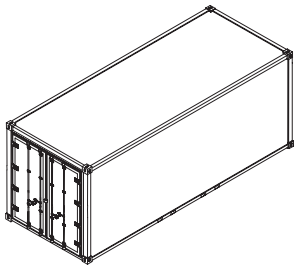
REMARKS:

ISO Number:

Exterior

Roof

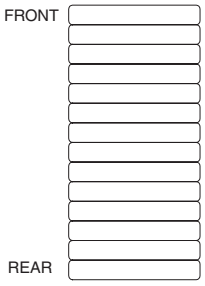
Component	Defects	
	Minor	CSC
ISO NUMBERS		
CORNER FITTINGS		
TOP END RAIL		
DOOR HEADER		
TOP SIDE RAILS		
ROOF PANEL		



(CIRCLE DEFECTS)

Bottom

Component	Defects	
	Minor	CSC
CORNER FITTINGS		
BOTTOM END RAIL		
BOTTOM SIDE RAILS		
DOOR SILL		
CROSSMEMBERS		
FORKLIFT TUNNELS		

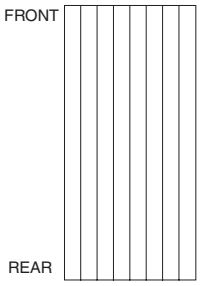


(CIRCLE DEFECTS)

Interior

Floor

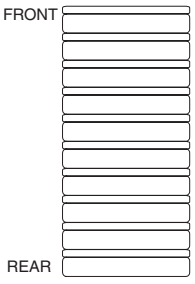
Component	Defects	
	Minor	CSC
FLOORING		
FLOOR FASTENERS		
THRESHOLD PLATE		
TIE-DOWN DEVICES		
LIGHT LEAK		



(CIRCLE DEFECTS)

Roof

Component	Defects	
	Minor	CSC
ROOF PANEL		
ROOF BOWS		
LIGHT LEAKS		



(CIRCLE DEFECTS)

END-OPENING VAN (continued)

Interior

Roadside

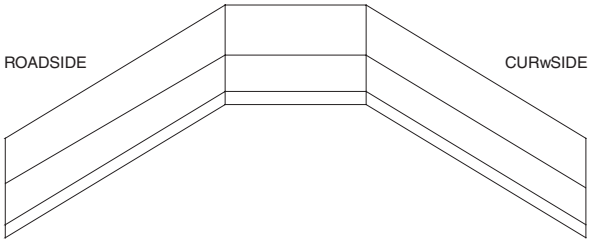
Component	Defects	
	Minor	CSC
PLYWOOD LINING		
KICK PLATE		
VERTICAL RAIL		
HORIZONTAL RAIL		
LIGHT LEAK		

Front

Component	Defects	
	Minor	CSC
PLYWOOD LINING		
KICK PLATE		
LOAD BEARING SURFACES		
LIGHT LEAKS		

Curbside

Component	Defects	
	Minor	CSC
PLYWOOD LINING		
KICK PLATE		
VERTICAL RAIL		
HORIZONTAL RAIL		
LIGHT LEAK		



(Circle Defects)

REMARKS

APPENDIX B:

MAINTENANCE ALLOCATION CHART (MAC)

SECTION I. INTRODUCTION

B-1 GENERAL.

a. This Appendix provides a general explanation of all maintenance and repair functions authorized at various maintenance levels for the Tricon Container.

b. The Maintenance Allocation Chart (MAC) in Section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance levels.

c. Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from Section II.

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2 MAINTENANCE FUNCTIONS.

Maintenance functions for this equipment will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical and mechanical characteristics with established standards through examination.

b. Test. To verify serviceability and to detect incipient failure by measuring the mechanical and/or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontamination, when required), preserve, drain, paint, or to replenish fuel, lubricants, chemical fluids, or gases.

d. Adjust. Maintain or regulate within prescribed limits, by bringing in to proper or exact position, or by setting the operating characteristics to the specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made by adjustment or alignment on instruments or test measuring and diagnostic equipment used in precision measurement. This consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position an item, part, or module (component or assembly) in a manner to allow the proper functioning of the equipment or system.

h. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. Replace is authorized by the MAC and is shown as the third position code of the SMR code.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, and/or replace) including fault location/troubleshooting, removal/installation, and disassembly/assembly procedures, and maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

B-3 EXPLANATION OF COLUMNS IN THE MAC, SECTION II.

a. Column 1, Group Number. Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly. End item group number shall be “00”.

b. Column 2, Component/Assembly. Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on the item listed in Column 2. Functions are defined in paragraph B-2.

d. Column 4, Maintenance Level. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the level of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different levels, appropriate work time figures will be shown for each level. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC. The symbol designations for the various maintenance levels are as follows:

C - Operator/Crew (Unit)
O - Organizational Maintenance (Unit)
F - Direct Support Maintenance
H - General Support Maintenance
D - Depot Maintenance

e. Column 5, Tools and Equipment. Column 5 specifies, by code, those common tool sets, individual tools, TMDE, and support equipment required to perform the designated function.

f. Column 6, Remarks. This column shall, when applicable, contain a letter code, in alphabetical order, which shall be keyed to the remarks contained in Section IV.

B-4 EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III.

a. Column 1, Reference Code. The tool and test equipment reference code correlates with a code used in the MAC, Section II, Column 5.

b. Column 2, Maintenance Level. The lowest category of maintenance authorized to use the tool or test equipment.

c. Column 3, Nomenclature. Name or identification of the tool or test equipment.

d. Column 4, National Stock Number. The National Stock Number of the tool or test equipment.

e. Column 5, Tool Number. The manufacturer’s part number.

B-5 EXPLANATION OF COLUMNS IN REMARKS, SECTION IV

a. Column 1, Reference Code. The code recorded in Column 6, Section II.

b. Column 2, Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

SECTION II. MAINTENANCE ALLOCATION CHART FOR TRICON ASSEMBLY

(1) Group Number	(2) Component/ Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equip.	(6) Remarks
			Unit		Direct Support	General Support	Depot		
			C	O	F	H	D		
00	TRICON ASSEMBLY	Inspect		0.3	0.3				A
		Repair			0.5				C
		Clean		0.5					
		Paint			1.0				C
01	CONTAINER, WELDED	Inspect		0.1	0.1				A
		Repair			2.0				C
02	CONNECTING LINK ASSEMBLY	Inspect	0.1						A
		Replace	0.1						B
03	DOOR TIE	Inspect	0.1						A
		Replace	0.1						B
04	VENTILATOR	Inspect		0.1					A
		Replace		1.0					
05	DOCUMENT HOLDER	Inspect		0.1					A
		Replace		0.5					
06	DOOR ASSEMBLY	Inspect			0.5				
		Replace			1.0				
07	DOOR SEAL	Inspect		0.1					A
		Replace		1.0					
08	DOOR COMPONENTS	Inspect			0.1				A
		Replace			1.0				B
09	SHELVES	Inspect	0.2						A
		Replace	0.1						B
10	SUPPORT BEAM	Inspect	0.1						A
		Replace	0.1						B
11	SPECIAL TOOLS	Replace		0.1					

ALPHABETICAL INDEX

C

Capabilities and Features, 1-4
Cargo
  securing, 2-5
  tie-down, 2-5
Checklist
  Container Inspection, A-1
  container inspection, A-1
Connect Containers, 2-8
Container
  connecting, 2-8
  inspection, 2-12
  lubricating, 4-3
  moving, 2-1
  reinspection, 2-12
Corner Post
  inspection and troubleshooting, 5-2
Couplings
  description, 2-7
  inserting, 2-8

D

Data Plate
  installation, 4-20
  location, 1-5
  removal, 4-19
Decking / Shoring Beam
  inserting, 2-6
  operation, 2-6
  releasing, 2-6
Decking/Shoring Beam
  description, 2-6
  inserting, 2-6
Direct Support
  inspection and troubleshooting, 5-1
Door
  close, 2-4
  installation, 5-10
  open, 2-3
  removal, 5-7
Door Gasket
  installation, 4-6
  removal, 4-4
Door Hasp Assembly
  installation, 4-16
  removal, 4-15
Door Sides / Ends
  inspection and troubleshooting, 5-1

E

End Rail
  inspection and troubleshooting, 5-3
Equipment Description, 1-4

F

Furnished Items, 1-7

H

Handle Container, 2-1

L

Locking Bar Assembly
  installation, 4-14
  removal, 4-13
Lubricate
  container, 4-3

M

Maintenance Allocation Chart, B-1
Manifest Box
  installation, 4-18
  removal, 4-17
Manual
  scope of, 1-3
Marking, 1-5
Model Differences, 1-5
Move Container, 2-1

P

Panel
  defects, 5-4
  inspection and troubleshooting, 5-4
Performance Data, 1-6
Preventive Maintenance and Service (PMCS), 4-1

R

Required Items, 1-7
Roof Assembly
  defects, 5-6
  inspection and troubleshooting, 5-6

S

Safety
  information, 1-1
  precautions, 1-1
Scope of Manual, 1-3
Secure Cargo, 2-5
Specifications, 1-6

T

Tools and Test Equipment 3-1
  flashlight, 3-2
  inspection stands, 3-2
  ladder, 3-1

U

Unit PMCS, 4-2

V

Vent
  installation, 4-12
  removal, 4-11

W

Warning
  information, 1-1
  summary, 1-1
Warranty
  claims, 1-5
  information, 1-5

By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:

JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
0608705

Distribution:

To be distributed in accordance with the initial distribution number (IDN) 256899, requirements for TM 55-8145-236-13&P.

These are the instructions for sending an electronic 2028

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however, only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17 and 27.

From: "Whoever" whoever@avma27.army.mil
To: tacom-tech-pubs@tacom.army.mil

Subject DA Form 2028

1. ***From:*** Joe Smith
2. ***Unit:*** home
3. ***Address:*** 4300 Park
4. ***City:*** Hometown
5. ***St:*** MO
6. ***Zip:*** 77777
7. ***Date Sent:*** 19-OCT-93
8. ***Pub no:*** 55-1915-200-10
9. ***Pub Title:*** TM
10. ***Publication Date:*** 11-APR-88
11. ***Change Number:*** 12
12. ***Submitter Rank:*** MSG
13. ***Submitter Fname:*** Joe
14. ***Submitter Mname:*** T
15. ***Submitter Lname:*** Smith
16. ***Submitter Phone:*** 123-123-1234
17. ***Problem:*** 1
18. ***Page:*** 1
19. ***Paragraph:*** 3
20. ***Line:*** 4
21. ***NSN:*** 5
22. ***Reference:*** 6
23. ***Figure:*** 7
24. ***Table:*** 8
25. ***Item:*** 9
26. ***Total:*** 123
27. ***Text:***
This is the text for the problem below line 27.

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS

For use of this form, see AR 310-1; the proponent agency is the US Army Adjutant General Center.

Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).

DATE: Date form is filled out.

TO: *(Forward to proponent of publication or form) (Include ZIP Code)*

Mailing address found on title block page.

FROM: *(Activity and location) (Include ZIP Code)*

Your mailing address.

PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER:	DATE:	TITLE:
TM X-XXXX-XXX-XXX	Date of the TM.	Title of TM.

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON (Exact wording of recommended change must be given)
	0019 00 1	3	1	1		Step No. 2 says to secure doors open with locking bar or hooks from where to what? The bars or hooks are not identified.
	0019 00 4	4	1	1		Step No. 19 states to remove locking bars, pins or hooks from where to what? The bars, pins or hooks are not identified. Where are they stored?

SAMPLE

* Reference to line numbers within the paragraph or subparagraph.

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
Doe, John, CPL	755-1313	*CPL John Doe*

TO: *(Forward to proponent of publication or form) (Include ZIP Code)*	**FROM:** *(Activity and location) (Include ZIP Code)*	**DATE:**

PART II- REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION/FORM NUMBER:	**DATE:**	**TITLE:**
TM X-XXXX-XXX-XXX	Date of the TM.	Title of TM.

PAGE NO.	**COLM NO.**	**LINE NO.**	**FEDERAL STOCK NUMBER**	**REFERENCE NO.**	**FIGURE NO.**	**ITEM NO.**	**TOTAL NO. OF MAJOR ITEMS SUPPORTED**	**RECOMMENDED ACTION**

SAMPLE

PART III - REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and*
blank forms. Additional blank sheets may be used if more space is needed.)

* Reference to line numbers within the paragraph or subparagraph.

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
Doe, John, CPL	755-1313	*CPL John Doe*

☆ U.S. GOVERNMENT PRINTING OFFICE 1981 341-646/8606

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS **For use of this form, see AR 310-1; the proponent agency is the US Army Adjutant General Center.**	Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: (Forward to proponent of publication or form) (Include ZIP Code) AMSTA-LC-LMIT/TECH PUBS, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	**FROM:** (Activity and location) (Include ZIP Code)	

PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.*	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON (Exact wording of recommended change must be given)

* Reference to line numbers within the paragraph or subparagraph.

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

DA FORM 1 FEB 74 **2028**

REPLACES DA FORM 2028, 1 DEC 68, WHICH WILL BE USED.

TO: (Forward to proponent of publication or form) (Include ZIP Code)	**FROM:** (Activity and location) (Include ZIP Code)	**DATE**

PART II- REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION/FORM NUMBER	DATE	TITLE

PAGE NO.	COLM NO.	LINE NO.	FEDERAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPROTED	RECOMMENDED ACTION

PART III - REMARKS (Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

☆U.S. GOVERNMENT PRINTING OFFICE 1981 341-646/8606

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS **For use of this form, see AR 310-1; the proponent agency is the US Army Adjutant General Center.**	Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: (Forward to proponent of publication or form) (Include ZIP Code) AMSTA-LC-LMIT/TECH PUBS, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	**FROM:** (Activity and location) (Include ZIP Code)	

PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.*	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON (Exact wording of recommended change must be given)

* Reference to line numbers within the paragraph or subparagraph.

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

DA FORM 1 FEB 74 **2028**

REPLACES DA FORM 2028, 1 DEC 68, WHICH WILL BE USED.

TO: (Forward to proponent of publication or form) (Include ZIP Code)	**FROM:** (Activity and location) (Include ZIP Code)	**DATE**

PART II- REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION/FORM NUMBER	DATE	TITLE

PAGE NO.	COLM NO.	LINE NO.	FEDERAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPROTED	RECOMMENDED ACTION

PART III - REMARKS (Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

☆U.S. GOVERNMENT PRINTING OFFICE 1981 341-646/8606

The Metric System and Equivalents

Linear Measure

1 centimeter - 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centrigram = 1.54 grains
1 gram = 10 decigrams = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram - 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Sqaure Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Mulitply by*	*To change*	*To*	*Mulitply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	sqaure inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	millitliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pounds-inches	newton meters	.11296			

Temperature (Exact)

° F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	° C